BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 4 1939

GALL-STONES: TEN YEARS' SURGICAL EXPERIENCE*

BY

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An invitation to deliver a memorial lecture demands of the lecturer something more than a mere recital of general impressions of some branch of surgery: it provides an opportunity to review in detail a special branch of his work. He is comforted by the thought that should his listeners not be particularly enlightened or entertained the review is yet of the greatest benefit to himself. It is easy in the rush of the daily event to forget details, to remember successes and gloss over failures, and a cold analysis of a series of cases and the re-reading of old notes in the light of new experience are salutary in confirming or destroying convictions. With this in mind I have collected and analysed all the cases of gall-stones upon which I have operated in the last ten years (1928–37 inclusive). At once one receives a correction, for the cases amount to 209, and my impression had been that they were far more numerous. They fall into well-defined groups, and I propose to discuss them in their order of frequency.

Calculous Cholecystitis

This is by far the largest group, consisting of 177 cases. It is the condition covered by the clinical description of "suffering from gall-stones." Its title denotes gall-stones confined to the gall-bladder, which is always more or less inflamed. Infection predisposes to the formation of gall-stones, and they certainly increase infection by their irritating presence. It is well known that the degree of suffering caused by cholelithiasis is very variable. Often calculi are discovered post mortem that have appeared to produce no ill effect during life, and yet in others they are responsible for excruciating suffering and constant ill-health. The explanation is to be found in local anatomical variation of the gall-bladder and the degree of associated infection. Of this series 50 per cent. sought surgical relief within twelve months of the onset of symptoms; the shortest history was two days, the longest twenty-five years, the average four years. In my opinion no individual welcomes surgical relief more readily than the sufferer from recurrent gall-stone colic. Aetiological findings merely confirm the experience of everyone. No age is exempt—the oldest patient was 79, the youngest 8. Females preponderate—154 to fifty-five males. My impression, not checked by figures, is that on the whole females suffering from cholelithiasis tended to be fat; males tended to be thin. Nearly all the women were married and with children. Many were in the thirties—that is, five to ten years after having children.

Clinical Features.—On analysing the clinical features of 110 patients in detail a variegated picture is obtained. Severe colicky pain as the only symptom was found in 31 per cent. of cases; colicky pain and indigestion in 34 per cent.; colic and jaundice in 10 per cent.; colic, indigestion, and jaundice in 6 per cent. Thus in 81 per cent. of cases pain was the chief symptom. Indigestion alone was complained of in 10 per cent. of cases, indigestion and jaundice in 7 per cent., leaving 2 per cent. in which a quiet symptomless tumour was the only finding. Colic was therefore much the most salient feature, but it showed a strange variability in location. It was often vague, but in 60 per cent. of cases it was referred to the right hypochondrium, and in 25 per cent. to the epigastrium. The pain radiated frequently to the right shoulder, sometimes to the back, and less frequently across the upper abdomen generally. Indigestion took the form of chronic dull epigastric pain, biliousness, flatulence, nausea and occasional vomiting, and constipation, all the features that would be expected to result from associated disorder of gastric and intestinal function.

Physical Signs.—In a quarter of the cases there were no physical signs at all; in 75 per cent. there was tenderness, with or without muscular guarding in the right hypochondrium. In 23 per cent. of cases there was a history of jaundice. In no instance was there jaundice without an additional symptom.

Diagnosis of Calculi

The diagnosis of calculi in the gall-bladder is sometimes easy. Recurrent attacks of colic; upper abdominal pain, usually most marked in the right hypochondrium, with pain referred to the right shoulder or back; local tenderness and rigidity below the ninth right costal cartilage, and a previous history of indigestion between attacks, make a clear picture which allows no other interpretation. *X*-ray examination, plain or after the injection of a dye, may show the position and the number of the stones clearly, or it may reveal only a non-functioning gall-bladder—a negative result of some value when taken into consideration with the clinical picture. Not every patient, however, suffers from colic: gall-stones may lie dormant, giving rise to little more than a feeling of localized discomfort; nor does every patient suffer from chronic indigestion between attacks. In the differential diagnosis

* The Cressy Memorial Lecture delivered before the Sutton and District Medical Society on December 2, 1938.

duodenal ulcer and appendicitis (which often coexist) must be considered: coronary disease not infrequently simulates gall-stone colic closely. In connexion with the heart it must be remembered that organic heart disease may be complicated severely by attacks of gall-stone colic. One patient in this series had suffered for years from heart disease and gall-stones, and appeared likely to die from the effect of repeated severe colic on the fibrillating heart. Removal of the gall-bladder and stones was safely accomplished, to the great benefit of the cardiac condition. Typhoid and paratyphoid are other diseases with a bearing on gall-stones. One patient in this series, a woman of 65, was a persistent paratyphoid carrier, and it was not until her gall-bladder, containing stones from which *B. paratyphosus* was cultivated subsequently, was excised that she ceased to be a danger to the community.

Prognosis

I find in my daily contact with medical practitioners that the operation for gall-stones has an indifferent reputation. This attitude is, as I shall hope to show, not founded on facts. It is due, I believe, to a failure to discriminate between calculi in the gall-bladder and calculi in the ducts. Calculi in the common bile duct is a later complication of gall-stones, and in most cases this much more serious condition could have been avoided by earlier recourse to surgery. When a stone obstructs the common duct and produces jaundice considerable time is often allowed to elapse before an attempt is made to relieve the obstruction, and with every day of jaundice that passes the liver function deteriorates. The mortality of common-duct stone is necessarily high. In my operations (160) for stones confined to the gall-bladder the mortality was 2.5 per cent., and this can be taken as a fair average for this operation. The four deaths occurred some time after operation, and were due to pulmonary embolism, myocardial degeneration, associated carcinoma of the colon, and volvulus of the small intestine, respectively. In nineteen cases other surgical procedures were carried out at the same time—appendicectomy, posterior gastro-enterostomy, and splenectomy. When it is considered that gall-stones not only make life a burden but are often present in and may be partly responsible for carcinoma of the gall-bladder and acute pancreatitis, the risk of a 2.5 per cent. mortality should not deter sufferers from seeking surgical relief.

Treatment

There is no medical treatment of gall-stones. Patients will ask for "dispersal" and quote examples of successful treatment among their friends. It may be possible that some solvent may be discovered in the future which can be directed to the biliary tract to dissolve calculi. At the moment surgery is the only cure, and it is on the whole a very satisfactory one. There has been much discussion in the past as to the relative value of removing the stones and draining the gall-bladder, or of excising the gall-bladder with the stones. I do not want to dwell too much on purely surgical problems on this occasion, but I must state my unhesitating belief in cholecystectomy whenever it is possible. There are certain contraindications: in the very old and feeble and in complicated cases with suppuration outside the gall-bladder or with stones in the common duct cholecystostomy will be preferred. The advantages of cholecystectomy are: (1) That it is a complete cure if all the stones are removed at the time of the operation. With the gall-bladder left *in situ* infection persists and stones re-form. (2) The time in hospital is much reduced. The average length of post-operative stay was 25.1 days after cholecystectomy, 33.7 days after cholecystostomy.

There are only thirteen cases of cholecystostomy in this series, and, as will be expected from their selected nature, the mortality was higher (7.6 per cent.). There are certain points in the technique of cholecystectomy which are worthy of mention. It is most important to remove every stone in the biliary passages. The so-called recurrent stone in the common bile duct has, I believe, always been overlooked at the original operation. Some surgeons, as a routine, open the common bile duct and explore it. I do not believe that this is necessary. Careful external examination of the ducts will show if the walls are hypertrophied or dilated, and stones (but not grit) can be palpated with fair certainty. The solitary gall-bladder stone with a minute cystic duct is unlikely to be associated with a stone in the common bile duct, whereas multiple stones with a wide cystic duct strongly suggest such a possibility. Too much stress must not be laid on the history, for common-duct stones often produce few symptoms, and a stone may lie long in the common duct without producing jaundice. If there is any doubt, always if it is dilated, the common duct must be opened and its lumen explored. Forceps or a sound should make sure of the patency of the opening at the lower end of the common bile duct. If the duct has been opened drainage is always advisable.

Stone in the Common Duct

The diagnosis and treatment of this complication form one of the more difficult features of gall-stone surgery. The majority of cases are typical, with severe epigastric colic, pain in the back, occasional rigors, and obstructive jaundice. It must, however, be remembered that this classical picture is not always present. There may be neither colic nor jaundice; the symptoms may be only those of indigestion of a duodenal type. Again, there is a condition which closely mimics the classical picture of common-duct stone—spasm of the sphincter of Oddi. This is the probable explanation of certain unsuccessful cholecystectomies which have been recorded, where attacks of colic have occurred after cholecystectomy and where no stone has been found after a second operation and exploration of the ducts. I have had two such cases. It is in the surgery of the common duct that most recent advances have been reported, and acknowledgment must be made to Walters and his colleagues of the Mayo Clinic. When the common duct has been opened drainage is imperative, and the T-shaped tube of Kehr has many advantages. This tube can be left in position for several weeks until the patency of the duct is assured, and it can be used for testing the freedom of the biliary tract by clamping the issuing limb of the tube. It can also be used for obtaining choledochograms (Walters and Thiessen, 1934) by the injection of a non-toxic oily substance, opaque to *x* rays, such as brominol. Pribram (1935) has gone further, and has succeeded in dissolving cholesterol stones in the common bile duct by the injection of ethyl ether through the T-tube into the duct. The method may be of value in those rare instances where the surgical cleansing of the common duct has been incomplete owing to the poor general condition of the patient or some other factor. Its results can be checked by choledochography. By means of the T-tube another observation of importance has been made by McGowan, Butsch, and Walters (1936) of the Mayo Clinic. Their studies of intraductal pressure have shown that biliary colic can sometimes be produced by the injection of

morphine, which causes spasm of the sphincter of Oddi so that the pressure may rise within the common duct. This spasm and the pain can be relieved at once by the inhalation of amyl nitrite. This observation has an obvious clinical application, and it would be well to give amyl nitrite rather than morphine in any case presenting colic of supposed common-duct origin.

My experience in common-duct stones in the last ten years has been unfortunate: of seventeen patients six died, a mortality of 35.3 per cent. All the fatal cases presented themselves very late in their illness, with extreme jaundice, considerable liver damage, and in one case with severe cholangitis. I believe that earlier operation might have led to a different result.

Obstructive Jaundice

This should receive earlier treatment than it does. With the exception of catarrhal jaundice, which is rarely intense and is of comparatively short duration, all forms of obstructive jaundice can be either relieved or cured by operation. In the presence of icterus careful preparation is imperative, and the generous administration of glucose and fluids will improve the liver resistance. Advantage should be taken of our experience in the urinary tract, and whenever surgically possible the decompression should be slow. If the obstruction is due to a stone, in the presence of severe jaundice the less done the better. The duct is exposed and the stone or stones located and removed by direct incision of the duct, followed by T-tube drainage. Only in mildly jaundiced cases should a more formal operation with cholecystectomy or cholecystostomy as a final stage of the surgical procedure be employed. Obstructive jaundice is more often due to enlargement of the head of the pancreas. The precise pathological, inflammatory, or neoplastic condition of the pancreas may be very difficult to determine. In either event cholecyst-gastrostomy or cholecyst-enterostomy is an operation which confers great benefit on the patient. It relieves the jaundice and thereby abolishes the intolerable itching. I prefer cholecyst-gastrostomy as a technical procedure, and performed it five times in this series with one death.

Acute Cholecystitis

Acute inflammation of the gall-bladder always presents a very typical picture, and the diagnosis is rarely in doubt. Opinions as to treatment, however, vary considerably. One school holds that acute cholecystitis, like appendicitis, should be subjected to operation at once, lest peritonitis, gangrene, or perforation ensue; the other school, to which I belong, considers that the inflamed gall-bladder cannot be compared to the appendix, either in its reactions to infection or as to the structures related to it, and does not require such immediate treatment. In contradistinction to the appendix it has a very adequate blood supply, and is in even closer relation to the surgeon's friend—the omentum. It is more shut off than the appendix. One of the disadvantages of immediate operation is that usually drainage only can be performed, and a subsequent operation may be necessary to remove the degenerated gall-bladder. I believe the safer course is to treat the subject of acute cholecystitis expectantly. The patient should be kept under close observation, and if there is any deterioration of general health, or if progress of physical signs shows itself, immediate operation of the drainage type must be performed. If, as has been the case in every patient under my observation, the inflammation recedes and the general condition improves, operation is postponed for three or four days in milder cases, three to four weeks in the more severe, when the patient is in better condition and removal of the diseased viscus can be safely undertaken.

Acholuric Jaundice

In chronic haemolytic jaundice, which may sometimes be familial, pigment stones are occasionally found. The underlying pathological condition may be missed and attention may be directed solely to the biliary tract. Enlargement of the spleen, which is always present, and a complete examination of the blood, revealing the fragility of the red blood corpuscles, should prevent this error. Splenectomy is performed with advantage in acholuric jaundice, although the red blood corpuscles are not always restored to normal. At the operation the bile passages must be examined and gall-stones, if present, should be removed. Among eleven cases of splenectomy in children I found pigment stones and a pathological gall-bladder in four, and performed cholecystectomy without mortality. The oldest of these patients was 11 years of age, the youngest (a case shortly to be published by Dr. Gairdner) 3¼.

Gall-stones in Children

Calculi are not the prerogative of the adult. True gall-stones similar in constitution to the adult form are found at times in childhood. I have removed a gall-bladder containing stones from a girl of 9, and a stone half an inch in diameter from the common duct of a boy of 7. They were probably the result of infection, for chronic cholecystitis is not unknown. At the Children's Hospital, Great Ormond Street, I operated on a boy of 8 whose gall-bladder contained no stones but was distended with pus. In any case of unusual abdominal colic presenting in the child the possibility of gall-stones should be kept in mind.

Conclusion

It seems justifiable to draw certain deductions from the study of even this short series of cases. It would appear that the picture of gall-stones, though protean in character, is on the whole easily recognized; that uncomplicated cases can be treated with comparative safety; that it is the late complications which increase the difficulties and raise the mortality and which can be avoided by earlier recourse to surgery.

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The third International Cancer Congress (under the auspices of the International Union against Cancer) will be held in Haddon Hall Hotel, Atlantic City, New Jersey, U.S.A., from September 11 to 16, under the presidency of Professor Francis Carter Wood, director of the Institute of Cancer Research, Columbia University, New York. Applications for membership of the congress should be accompanied by a remittance of fifteen American dollars and sent to the secretary-treasurer, Dr. Donald S. Childs, 713, E. Genesee Street, Syracuse, New York. Cheques should be made payable to the Third International Cancer Congress. Membership forms for the congress have arrived from New York, and are available at the offices of the British Empire Cancer Campaign, 11, Grosvenor Crescent, S.W.1, for anyone who wishes to take part in the congress. Further information can be obtained from Mr. Cecil Rowntree, F.R.C.S., 17, Harley House, N.W.1.

ACUTE DILATATION OF THE STOMACH

BY

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Experience has taught me that acute dilatation of the stomach is a fairly common post-operative complication. It can occur after any operation. In the older literature operations upon the biliary tract headed the list. For some reason or another this does not appertain at the present time. Possibly the greatest incidence follows prostatectomy, but from time to time acute dilatation of the stomach is encountered after such divergent surgical procedures that nothing profitable is likely to accrue from enumerating them. The main object of this communication is to stress the need for early diagnosis, and the practical aspects of the problem will be discussed first.

Diagnosis

Acute dilatation of the stomach can be diagnosed before the patient vomits. The day should have passed when the condition remains unsuspected until an enormous quantity of the characteristic fluid, which may be likened to the storm water of a peat-laden stream, is ejected.

PREMONITORY SYMPTOMS AND SIGNS

Early symptoms and signs are far from being stereotyped. We are summoned to the bedside because there is something amiss. The pulse is rising. The patient need not look gravely ill. He is not in any pain, but he usually says that he feels uncomfortable. It is of paramount importance to realize that vomiting occurs relatively late. Let alone vomiting, at this stage he does not necessarily experience even nausea, but an occasional hiccup is not uncommon. The output of urine is invariably scanty, although during the first few hours this fact cannot be gauged with accuracy. On observing the upper abdomen carefully a slight fullness may be seen in the hypochondria ; the characteristic sign is the obliteration of that normal sulcus immediately beneath the costal margin (Fig. 1), but in obese subjects this is difficult to assess, if not entirely unreliable.

FIG. 1.

FIG. 2.

FIG. 1.—Obliteration of the normal slight concavity beneath the costal margin is a somewhat characteristic sign in acute dilatation of the stomach.

FIG. 2.—My tube for continuous aspiration of the stomach via the nasal route. There is a coiled spring within the distal end of the tube to stiffen it. This aids considerably in its passage from the nostril to the stomach.

Even if the diagnosis of acute dilatation is merely on the horizon, no possible harm can accrue from what may be termed " sounding the stomach." The nasal route for the passage of the tube is the best. A Ryle tube can be used, but the one illustrated in Fig. 2 is a little easier to pass, for it contains a coiled spring in the distal end, which helps to stiffen the tube. At the Royal Northern Hospital I learned from Sister McClusky, who is an adept at this procedure, a very simple and efficient technique. The tube is first placed in ice-cold water. After the end has been passed down the nose and made to enter the nasopharynx the patient is given sips of water. With each gulp the tube is passed onwards until it is well within the stomach (Fig. 3). The contents are then aspirated with a well-fitting syringe, preferably glass.

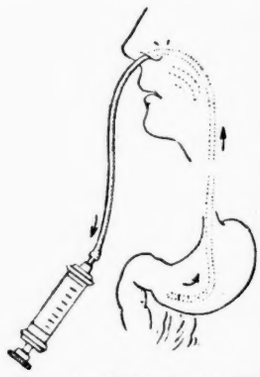

FIG. 3.—Drainage of the stomach via the nose.

I used to be afraid of distressing the patient by sounding the stomach, especially when the diagnosis was in reasonable doubt ; but so often has the benefit from the passage of the tube outweighed the misdirected compassion of withholding it that I feel most strongly that to procrastinate even for a few hours is the antithesis of good judgment. Over and over again a quantity of dark fluid is aspirated, and the diagnosis of at least some degree of acute dilatation is established. Even if the stomach is found to be empty, extremely important diagnostic data have been obtained.

Principles of Treatment of Acute Dilatation

These principles are: (1) empty the stomach and keep it empty : (2) administer continuous intravenous saline;

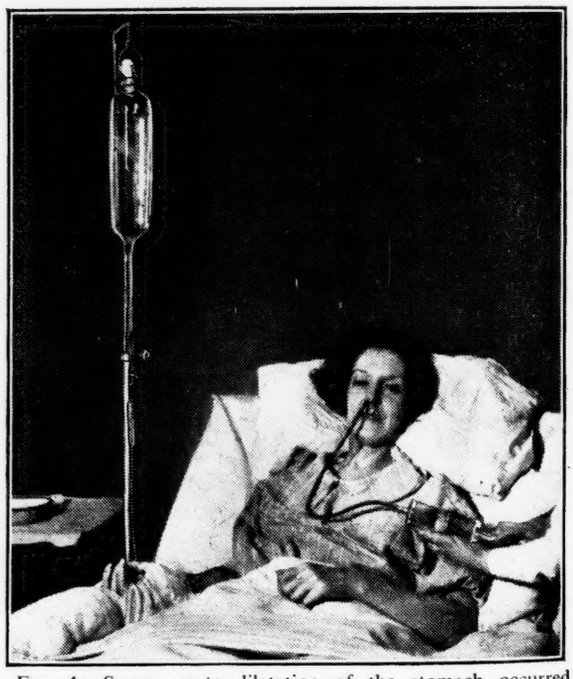

FIG. 4.—Severe acute dilatation of the stomach occurred four hours before this photograph was taken. The patient, the day previously, had the lower ileum resected for Crohn's disease.

(3) invoke the aid of gravity. With the gastric aspiration tube *in situ* the stomach can be emptied and kept empty. The next important principle is to replenish the fluid loss by giving continuous intravenous saline. Posture, which until recently was given prior place in the treatment, is, I consider, relatively unimportant. This is fortunate, for to be compelled to turn a patient with a laparotomy or suprapubic wound on to his face, and to raise the foot of the bed, is not desirable if it can be avoided. If the

patient is responding to the first two measures—and usually the response is undeniable—the application of the third is unnecessary. Although I have never used it, the German method of placing the patient in the high Trendelenburg position seems to be more generally applicable than the prone posture with elevation of the foot of the bed.

The fluid aspirated is measured and charted. The patient may drink as he pleases, and the injected fluid is aspirated promptly; in this way the stomach is washed out. Eserine 1/200 grain is prescribed every four hours for three doses. If the case is one of acute dilatation without other complications, signs of improvement are not long delayed. The pulse improves, and the fluid aspirated lessens in quantity and becomes clearer. Even when the fluid aspirated is quite clear (Fig. 4) danger is not passed, for gastric dilatation is prone to recur. The gastric tube should be left in place at least thirty-six hours after the stomach has apparently regained its tone. Before withdrawing the tube it is a good practice to give a "gastric mobility test." I order the patient to drink half a pint of barley-water coloured with cochineal or indigo-carmine. If in an hour and a half none of this coloured fluid can be aspirated, it is proof positive that the stomach has regained its tone; only then is it safe to withdraw the tube and begin feeding.

Theoretical Considerations

Acute dilatation of the stomach was first described by Kundradt in 1871. In 1872 Hilton Fagge gave an independent description. Much work has been done upon the condition, and many theories have been propounded, but no substantial advance in understanding it has been made

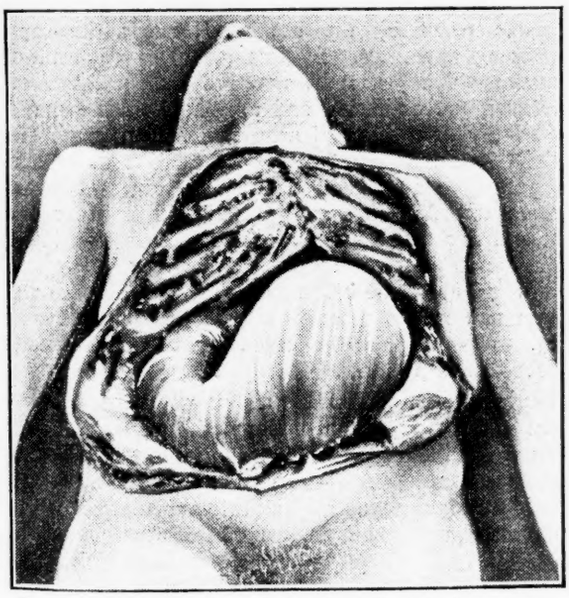

FIG. 5.—Acute dilatation of the stomach seen at necropsy.

in the last twenty-five years. The vomitus has an acid smell, and usually contains black particles. The amount of fluid produced and ejected in acute dilatation is so enormous that for generations inquiring minds have engaged upon the solution of the riddle, "Where does it all come from?" Obviously the vomitus usually contains bile, sometimes even pancreatic fluids can be demonstrated in it, but the greatest part of the production must be attributed to gastric hypersecretion. At necropsy the stomach is found to be enormously dilated and may extend into the pelvis (Fig. 5). In a case reported by Albrecht the greater curvature measured twenty-seven inches and the lesser seven inches, and the pyloric opening two inches. It is important to note that the dilatation usually extends down to the point where the duodenum is crossed by the root of the mesentery. This has been noted by competent observers many times. In one case at least—Baulmer's—the constriction of the mesenteric root was so pronounced that circular necrosis of the mucosa was found. The popular conception is that the dilated stomach pushes down a mass of small intestine, causing in turn a drag upon the mesentery, and this

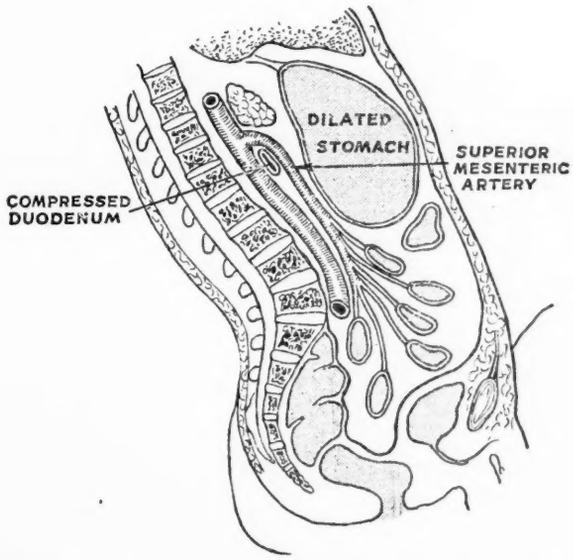

FIG. 6.—The vicious cycle of untreated acute dilatation. The dilated stomach pushes down the small intestine, which drags upon the mesentery, which in turn compresses the third part of the duodenum.

strangles the duodenum (Fig. 6). The initial dilatation has been attributed to vagal shock and to swallowed air. The swallowed-air theory has little to recommend it; indeed, it can be discounted. It is more than probable that primary or delayed shock, particularly with the patient in Fowler's position, would tend to favour gastric dilatation; but, important as it is as a subsidiary factor, this cannot be the whole truth. What causes the initial expansion of the stomach is still a mystery.

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L. Amitrano (*Rinasc. med.*, 1938, **15**, 724) records eight cases of argyrosis in newborn children following the local treatment of conjunctivitis by argyrol. The conjunctivitis was catarrhal in four, purulent in two, and gonococcal in two. The argyrosis appeared in one case after more than a month's treatment, in three after a month, and in four after three weeks. The coloration lasted for a few days and gradually subsided within a week. No other symptoms were observed. Many cases of chronic argyrosis have been described in adults following the prolonged ingestion of silver preparations, but the condition is much rarer in infants, though Lavel and Stand have recorded seventy cases, including fifteen of their own, in which argyrosis followed prolonged nasal instillations with organic preparations of silver.

AETIOLOGY OF GLAUCOMA*

BY

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From the time investigators first described glaucoma increased ocular tension has been regarded as its chief characteristic. But this increase in tension is really only a symptom, the causes of which are manifold.

The current classification of glaucoma into inflammatory, primary, and secondary corresponds to clinical experience. This is confirmed by a series of more than 3,000 cases operated on at the First Ophthalmological Clinic. The common factor in the various forms of glaucoma is increase of ocular tension, but as these forms themselves differ in their clinical manifestations they necessarily differ also in pathogenesis. The earlier investigators believed the increase of tension to be due to an occlusion of Schlemm's canal at the so-called angle of the anterior chamber, by which stagnation is produced. The tendency of hypermetropes to develop glaucoma was similarly explained. But forms of glaucoma were discovered in which the depth of the chamber was normal (simple glaucoma and haemorrhagic glaucoma), this being proved by measurements taken by the slit-lamp and goniometer. Statistical data furthermore revealed that of the glaucoma patients 23 per cent. were emmetropic and 15 per cent. myopic, a proportion sufficiently large to convince investigators that general causes, as well as local alterations, must be concerned.

It seems superfluous to detail the investigations which aimed at determining the influence of the acid–alkaline balance of the body, the internal secretion, the vegetative nervous system, and blood pressure on glaucoma development. Hertel's, and especially Imre's, observations concerning the influence of hypophyseal, thyroid, and ovarian secretion were very important; so was another aspect—that of the relation of glaucoma to the circulatory system.

Relation of Glaucoma to Blood Pressure

Our own research work was undertaken to investigate the possible relation of glaucoma to blood pressure. At the time our investigation began there was a considerable difference of opinion in the literature concerning this question. According to Kümmel, the systolic pressure increases in those suffering from glaucoma; but Elschnig was unable to find any difference in blood pressure when comparing 100 cases of glaucoma with 100 cases of cataract. The investigations were conducted by means of Plesch's tonograph, a device by which information is obtained regarding the state of the vessel walls. The examination revealed the fact that the systolic blood pressure of 100 sound persons ranged from 120 to 200 mm. Hg, and the diastolic from 60 to 95 mm.; while the corresponding values in 150 persons suffering from glaucoma were 120 to 230 mm. and 60 to 115 mm. respectively. The difference is not sufficient to suggest the existence of hypertonia in glaucomatous persons. Attention was next directed to the small vessels. Changes in the general circulation are synchronized to the circulation of the eye through the precapillaries and capillaries. It has long been known that the oscillations of a tonometer placed on the eye correspond to those of systolic and diastolic pressure. These oscillations were even photographically recorded by means of complicated optical devices. We ourselves used Recklinghausen's tonograph, the reading from which was absolutely identical with the oscillogram taken from the brachial artery.

Pressure within the small ocular vessels can be determined by applying Bailliart's tonometer and that of Seidel. By the former the pressure of the central retinal artery, by the latter that of the anterior ciliary vessels, are determined. Under normal conditions the diastolic pressure of the central retinal artery is half that of the brachial artery. Generally, the pressure within the anterior ciliary vessels varies with that of the central artery. According to the data procured from the application of Bailliart's instrument these pressures are in ratio to the ocular tension: if the ocular tension increases, the diastolic pressure of the central retinal artery increases correspondingly, seemingly in a passive manner regulated by an automatic mechanism. But the values determined within the anterior small vessels are normal, these being independent of the ocular tension, since their pressure is determined before they enter the eye. So far, then, no values that are characteristic of the tension of glaucoma could be determined, either within the large vessels or within the precapillaries. It was found, however, that when the ocular tension increases the pressure within the intra-ocular vessels increases also, but that of the extra-bulbar vessels does not.

O. Müller and Parrisius discovered by capilloscopy that the vasomotor instability of glaucomatous persons was a characteristic peculiarity. Mészáros, Tóth, and I myself came to the same conclusion. We procured a similar valuable result by the use of Herzog's skin-capillary measuring apparatus. By this means is determined the pressure which just suffices to prevent the filling of the arterioles, precapillaries, and capillaries of the skin from the supply of the digital arteries. This pressure Herzog calls "dermal tension," and he calculates its amount to be normally around 40 to 50 mm. Hg. The dermal tension according to Mészáros and Tóth is under 40 mm. Hg, and this figure was confirmed by our own investigation; we furthermore found that the reactive hyperaemia (the filling up of the bloodless finger with blood, normally within one to two seconds) is prolonged. All these data seem to prove that the capillary pressure increases in glaucomatous persons.

During investigations by means of the tonograph we observed that there is a difference between the amplitude of the oscillations in glaucomatous hypertonics and that in sufferers from thrombosis of the central retinal vein. The tonographic reading in glaucomatous persons at 200 mm. Hg pressure shows a normal oscillation of 8 to 10 mm., against over 15 mm. in thrombotic individuals, proving that there is a decrease of elasticity in the walls of the vessels. According to our data inflammatory glaucoma rarely occurs in persons suffering from grave arteriosclerosis (nephrosclerosis and diabetes), but their capilloscopic reading, as well as the tonogram and the dermal-tension value, differs from that found in cases of glaucoma. According to our view the acute capillary dilatation observed during glaucomatous attacks is possible only with an elastic wall of the vessels, and not in the rigid brittle wall of arteriosclerotic persons.

Of the 3,254 glaucomatous patients collected from the material of the First Ophthalmological Clinic during the

* Paper read before the assembly of the Royal Budapest Medical Association on November 18, 1938. Research conducted by a grant of the Széchenyi Scientific Association.

thirty years 1904 to 1933—and of the similar, though smaller, series from the ophthalmological department of the Policlinic—60 per cent. were females, and 80 per cent. of the acute attacks befell women at the time of climacteric. This ratio explains the relation of glaucoma to the endocrine system and renders the vasomotor instability of glaucomatous persons easily understood, as during the climacteric women are disposed to congestion, perspiration, and similar vasomotor reactions. Furthermore, the frequency of glaucomatous attacks in winter time is conspicuous. This connexion with meteorological conditions points again towards vasomotor instability of the capillaries.

Primary Glaucoma

These data are characteristic of inflammatory glaucoma. Quite another group is that of primary glaucoma. This type is indicated clinically by the slow gradual weakening of vision and concomitant narrowing of the visual field. Externally, conditions seem to be unaltered ; ocular tension has hardly increased at all, nevertheless the optic nerve is inevitably destroyed. The capillaries and the dermal-tension values of these individuals are the same as those of persons suffering from inflammatory glaucoma ; their tonographic reading is rather that of arteriosclerosis ; and according to statistics 56 per cent. of the cases concern men, whereas inflammatory glaucoma is more frequent in women. In one of our cases—that of a man suffering from primary glaucoma of one eye, under our care for years—the eye had to be removed on account of the glaucoma becoming absolute. Histological investigations showed the thick-walled central retinal artery responsible for the tonographic reading of large amplitude. It has to be supposed, consequently, that primary glaucoma, in contrast to the inflammatory type, develops because of arteriosclerotic alteration, and accordingly does not show any great increase in ocular tension. The destruction of the optic nerve seems to be the sequel to circulatory defect and to the resulting alimentary deficiency.

Glaucoma following Retinal Vein Thrombosis

The third type of glaucoma is that following thrombosis of the central retinal vein. Fifty cases of central retinal vein thrombosis were observed by us, and in twenty-three of them glaucoma developed in a few weeks. Pathologically the question why glaucoma follows thrombosis of the central retinal vein in a certain percentage is quite unanswered. First it should be decided in which cases this especially occurs. As a rule the victims are people of advanced age whose blood pressure is high and the amplitude of whose tonographic reading is large. Patients with thrombosis without glaucoma possess relatively satisfactory sight, a sign that the thrombosis has been partial, whereas those who develop glaucoma have previously lost even a sense of light in general, denoting that the thrombosis is situated within the main branch. Histologically such cases display a central retinal artery in which the wall has thickened, the endothelium has proliferated, and hyaline degeneration has set in. All these are types of alteration that are often followed by grave defects of eye metabolism. We know that in whatever organ thrombosis may be located pathological products such as carbonic acid, lactic acid, citric acid, and hydrochloric acid accumulate, and this must necessarily be the case within the eye.

It is probable that under the influence of these acid substances the vitreous body, which essentially is of colloidal structure, slowly begins to swell up and gradually increases the ocular tension. This assumed swelling of the vitreous body is discussed in the literature. I investigated the matter by applying Krogh's osmometer, and found that the vitreous body shows an osmotic pressure of 98.5 mm. of water as an effect of physiological substances, while with a 1 per cent. solution of lactic acid the pressure increased to 166 mm. These experiments proved without doubt that the vitreous body is capable of increasing the ocular tension when affected by pathological products of metabolism, and to cause development of glaucoma in cases of thrombosis of the central retinal vein, probably by an alteration in the hydrogen-ion concentration.

Commentary

Summarizing the above observations, the part played by the circulatory system in all forms of glaucoma becomes evident—a fact that is proved by the results of the so-called stressing tests, which are applied to ascertain whether the suspicion of a possible glaucoma, suggested by the patient's complaints, is justified. The ocular tension in persons disposed towards glaucoma is increased by several millimetres compared with the normal when they drink a larger amount of liquids or after taking substances containing caffeine (coffee, tea), or if they are put into a position in which the head hangs down. This phenomenon is also explained by the alteration in the circulatory system. The ocular tension of glaucomatous persons considerably increases likewise after inspiration of amyl nitrite, whereas the ocular pressure of arteriosclerotics does not increase at all, or only to an insignificant degree, in similar conditions.

It is evident, therefore, that the endocrine dysfunction of glaucomatous persons exerts its effect by altering the reactive capacity of the vessels and capillaries, or, rather, by disturbing the balance between the osmotic pressure of the blood proteins in the capillaries and arterioles and the ocular tension. Therefore the efforts of various workers to influence the endocrine function of glaucoma patients, chiefly by application of folliculin—and thus in my opinion by the effect on the circulatory system—seem justified, when used in conjunction with either conservative treatment or surgery.

Preparations for the fourth World Conference of Workers for Cripples, which is to be held in London at Bedford College for Women next July, are going forward very satisfactorily. At the official opening on Monday afternoon, July 17, the Minister of Health has agreed to give an address. The meetings will be held in the big hall at Bedford College, and many of the delegates will be accommodated in the college residences, others being housed in hotels near by. Intending delegates should send in their completed application forms as early as possible to the organizing secretary, Conference of Workers for Cripples, 34, Eccleston Square, S.W.1. The conference is officially recognized by the Ministry of Health, the Board of Education, the Scottish Office, and the Ministry of Home Affairs for Northern Ireland, and delegates serving under local authorities should apply through them so that they may claim their expenses. At the first session on July 18 the subject "Preventive Orthopaedics in Childhood" will be opened by Mr. R. C. Elmslie. On July 19 the main subject will be "The Education, Vocational Training, and Subsequent Employment of the Cripple." The morning of July 21 will be devoted to "The Industrial Cripple." On July 20 the delegates will spend the day at Oxford, with a visit to the Wingfield Morris Orthopaedic Hospital. Among other arrangements for July 22 is an excursion to the Heritage Craft Cripple Schools at Chailey.

SOME ASPECTS OF THE VENEREAL DISEASE PROBLEM IN THE FEDERATED MALAY STATES

WITH A SEROLOGICAL SURVEY OF INDIAN LABOURERS

BY

IAN D. GEBBIE, M.B., Ch.B., D.T.M. & H.

Late Malayan Medical Service

Preliminary examination of available data on the venereal disease problem in the Federated Malay States seemed to suggest that the importance of syphilis and gonorrhoea as causes of death and disability was scarcely realized, nor did it appear that comprehensive material for the reliable assessment of the incidence of venereal diseases in the Federated Malay States had up to the present been assembled. In this mixed community of Malays, Chinese, and Indians, the majority of whom are uneducated and retain many of their primitive beliefs, there is still a considerable mistrust of Western medicine. Treatment when it is sought is very often obtained at the hands of quack doctors, who practise freely. There are conditions, too, which tend to divert the attention of medical men from the venereal diseases. The first and most important of these is the prevalence of malaria: it is probably true that about one-quarter of the medical work in the F.M.S. is directed to combating malaria either directly or indirectly. The second is the comparatively small number of medical men in the medical service in relation to the amount of work. Thirdly, the post of Chief Medical Officer, Social Hygiene, F.M.S., was abolished in 1934, ten years only after the creation of this specialist post for the direction of work against the venereal diseases.

Discussion of the problem falls naturally under two headings: (1) social conditions which, in themselves, are favourable to spread of infection; and (2) the figures and reports on social hygiene in the reports of the Medical Department, F.M.S.

Social Conditions

TABLE I.—*Population, F.M.S.*

Year	Malays	Chinese	Indians	Others	Total
1929	585,055	545,125	414,740	17,481	1,562,401
1931 (Census)	593,134	719,734	384,677	24,572	1,723,117
1937	664,119	826,627	440,269	30,382	1,961,397

Two facts are noteworthy about the population figures: (i) the dominant factor in increase is immigration; (ii) immigrant races greatly outnumber indigenous people.

TABLE II.—*Urban and Rural Dwellers (1931 Census)*

Race	Dwelling in Urban Areas	Percentage of all Urban Dwellers
Chinese..	38.5	62.9
Indians..	24.7	21.5
Malays..	11.1	11.9

Since 1931 there have been no alterations in local conditions which would tend to upset the general fact that the Chinese are the greatest urban dwellers, followed by the Indians and the Malays.

TABLE III.—*Sex Ratio—Males per 100 Females*

Race	Year		
	1931	1935	1937
Chinese	203	165	153
Indians	183	184	191
Malays	100	104	104

CHINESE

The Chinese form the largest racial group in the F.M.S. Their main occupations are in agriculture, financial and commercial business, as labourers on tin mines, and as general labourers. In agriculture a considerable number grow vegetables on their own account and a great many others are employed as labourers on rubber estates, where their number is approximately the same as that of Indians. Financial and commercial business is almost monopolized by the Chinese, who comprise about 75 per cent. of this group. Labourers on tin mines are about 90 per cent. Chinese, and as general labourers they share equally with the Indians. Living conditions of Chinese labourers, who form about one-third of the Chinese population, are very often extremely bad. They generally live in large bachelor "messes," overcrowded, insanitary, and sordid. There is little "home life" for these. The Chinese men greatly outnumber the women in Malaya. The labourer, as a respite from his surroundings, goes to coffee-shops and such places, where prostitution is frequent.

The population of the towns is over 50 per cent. Chinese (about one-third of the total Chinese population), and thus a considerable number are exposed to the temptations of the prostitute in urban areas, which throughout the world are in most cases found to have a higher prevalence of venereal disease than rural areas. The above conditions are favourable to the spread of venereal disease within the Chinese community.

INDIANS

In agriculture Indians are employed in approximately equal numbers with Chinese as labourers on rubber estates. On tin mines they form only about 10 per cent. of the labour; in the public service they comprise most of it. Indians form only about 20 per cent. of those engaged in commerce and finance. On the rubber estates they enjoy conditions very different from those of any other labourer in the country. They are really well housed, often in little cottages, and "home life" is encouraged. They are frequently given gardens in which to cultivate vegetables for their own use; their conditions are sanitary; and on all larger estates medical supervision and attention are supplied by the company, this being enforced by law. The position of the Indians in the public service is much the same.

In the towns only about one-fifth of the population is Indian, representing about a quarter of the whole Indian population. The sex ratio is somewhat worse than that of the Chinese. Conditions are not such as to encourage promiscuity and prostitution to the same extent as with the Chinese. It is probable, therefore, that there is less prevalence of venereal disease among the Indians.

MALAYS

These, the people of the country, are mostly rural dwellers; they form only about one-tenth of the urban population, this being one-tenth of the total Malay population. They live largely in villages on small-holdings—cultivation of rice or rubber, and fishing, being the main occupations. Their sex ratio is a natural one; there is

"home life" among the people, and prostitution and promiscuity are less than among Chinese and Indians. Conditions, therefore, are less favourable to the spread of venereal disease among the Malays.

The Figures and Reports on Social Hygiene in the Reports of the Medical Department, F.M.S., 1929 to 1935

TABLE IV.—*Total Number of Cases of Venereal Disease Treated at Government Hospitals and Clinics in the F.M.S., 1929 and 1935*

Year	Chinese		Indians		Malays		Others		Total
	No.	%	No.	%	No.	%	No.	%	
1929 ..	22,615	55.4	11,707	28.7	3,545	8.7	2,935	7.2	40,802
1935 ..	7,790	42.3	6,642	36.1	2,602	14.1	1,376	7.5	18,410*
Decrease :	65.5%		43.3%		26.6%		53.1%		54.9%

*(i) The 1935 report gives 18,422 as the total number of treated cases. (ii) There has been a steady fall in the total from 1929.

TABLE V.—*Venereal Diseases Treated, 1929 and 1935*

Year	Syphilis	Gonorrhoea	Soft Sore
1929	24,975	12,366	3,461
1935	10,239	6,653	1,518
Decrease :	59%	46.2%	56.1%

TABLE VI.—*Ratio of Syphilis to Gonorrhoea (in Cases Treated)*

Year	Chinese	Indians	Malays	Total
1929	2.4	1.7	2.1	2 : 1
1935	1.9	1.1	1.9	1.5 : 1

TABLE VII.—*Average Number of Injections of Arsenic and Bismuth per Case of Syphilis*

1929 ..... 3.9 | 1935 ..... 4.7

In 1930 there were six clinics and fifty-three other places where treatment was available. This number was not less in 1935. Now, in the Report of the Medical Department, F.M.S., 1935, the following statement is made, based on the figures given above:

"It might have been expected that the increased immigrant population and the improvement in economic conditions would have caused an increase in the incidence of V.D. That the contrary is true seems to indicate that the work done during recent years in the way of education, legislation, and treatment is producing good results. It is significant that the decline in the number of cases has been consistent and progressive since the policy of closing the known brothels was first introduced."

It is suggested (*a*) that the assumption that a fall in the attendances for treatment indicates a fall in incidence is untenable, and (*b*) that education, propaganda, the treatment available, and the closure of brothels may even have acted in the reverse direction. To cite a fall in cases appearing for treatment as a fall in the incidence of venereal disease demands that one should have good grounds for believing that the same percentage of the infected attend for treatment from year to year, having due regard to population. It is not believed that these demands can at present be satisfied in the case of the F.M.S., where quack treatment is allowed and where there is no accurate knowledge of the number of patients treated by private medical practitioners from year to year.

From 1924 to 1934, when the post was abolished, the direction of work against venereal diseases was in the hands of a specialist officer. Since 1934 each State of the Federation has carried on its own work with the ordinary medical staff. This has possibly resulted in a lowered standard of attack on the disease, in that a single specialist officer directing would probably achieve much more than a medical officer dealing with a clinic as a part of his multifarious duties. The clinics themselves, in most instances, can hardly attract the infected to come for treatment. In 1936 the clinic in one of the largest towns of the F.M.S., serving a population of about 60,000, conformed to few, if any, of the usual requirements of a V.D. clinic. No secrecy was provided, in that a patient entered the clinic direct from a public thoroughfare in a populous portion of the town, and could be entering only for one purpose—the treatment of a venereal disease. The clinic itself was dirty, dark, and ill kept generally. No facilities were provided for dark-ground examination of suspected syphilitic lesions. Inquiry showed that it had not been deemed necessary to consider cures; in fact, the clinic could not produce evidence that one case of gonorrhoea or syphilis was cured during the year.

Taking the treatment of syphilis in the F.M.S., it is noted that the average number of injections of arsenic and bismuth per case rose from 3.9 to 4.7 only. This does not indicate much progress, and 4.7 injections are hardly sufficient to render the patient non-infectious or to enable a woman to bear non-syphilitic children. The usefulness of even these few injections is further lowered, because treatment, in the absence of diagnosis by dark-ground illumination, has to await the development of a positive serum reaction.

Education has progressed considerably since 1929. This has resulted in a more discerning outlook in the individual, who now demands more from the social services. With increasing knowledge of the venereal diseases and their dangers the people are beginning to think of them as social stigmata demanding secrecy in their treatment. The present clinics are hardly likely to appeal to the more educated, and could scarcely prove attractive even to the uneducated. It is possible, therefore, that a great many more cases are being treated by private practitioners than in 1929. Propaganda mainly takes the form of leaflets and public notices. Surely it would be better first to improve the treatment centres, for the best form of propaganda is the cured patient. In this connexion Dr. J. G. Reed has kindly allowed me to quote from recent experiences of his in practice on a large estate. Several childless married Indian women labourers with a history of stillbirths and neonatal deaths came before him for ante-natal care. Serological tests were positive for syphilis. In each case anti-syphilitic treatment was given throughout the pregnancy, and resulted in the birth of a healthy baby. The gratitude of the mothers knew no bounds; they were convinced of the efficiency of Western medicine, and they told their friends. Cases of this sort are the best type of propaganda.

The known brothels were closed in 1930 under the Women and Girls Protection Act, which made brothel-keeping an offence. This Act may very well have driven much of venereal disease underground. At the female clinic in Kuala Lumpur in 1930, 2,541 women were treated, of whom 1,637 were prostitutes. In 1931 only 1,035 patients were seen at this clinic. It is difficult to believe that the prostitutes suddenly went out of business owing to closure of brothels. It is much more likely that they continued their trade and did not attend for treatment owing to their suspicion of Government institutions. This suspicion was also possibly communicated to their clients. The net result, then, would be spread of infection but no appearance of the infected for treatment. Prostitution is still rife, and it is doubtful if an appreciable number of infected prostitutes attend at clinics.

Serological Investigation

It is suggested that the figures in the medical reports of the Medical Department, F.M.S., are capable of more than one interpretation and that conclusions drawn from them are open to doubt. I have been unable to obtain further information on the subject which would assist in evaluating the measures adopted in the Federated Malay States against the venereal diseases or in arriving at an accurate estimate of their incidence and prevalence. In view of this an attempt was made to arrive at an estimate of the prevalence of syphilis among one section of the community by means of a serological survey reported below.

(A) AREA

The investigation was undertaken in Batang Padang District in the State of Perak, F.M.S., in 1937. On each of six large estates every male Indian working coolie was examined by Wassermann and Kahn tests, also seventy-eight male coolies in the public service—a total of 957. Of these all but forty-two, who were born in Malaya, were immigrants from India.

(B) THE SIGNIFICANCE OF THE WASSERMANN AND KAHN TESTS

The Wassermann test was carried out by the method described by Wyler (1929). The Kahn test was the "standard" Kahn. The Wassermann and Kahn tests have been described as occasionally positive in a great variety of conditions apart from syphilis and yaws, but only three of these need be considered as possible sources of error in this investigation—namely, leprosy, yaws, and malaria. Leprosy is common in India, being estimated at 50,000 cases in the Madras Presidency with its population of about 48,000,000 in 1934. At that rate one would expect to find only one or two cases among the people examined in this investigation, and actually none showed gross evidence of leprosy or had a history of leprosy except two cases which had been treated with good results and gave negative serological reactions. Yaws, though common in some parts of the country, is rare in this particular district. None of the people examined gave a history of yaws or presented any signs of previous yaws infection. It seems probable that malaria may give a positive serological reaction in the absence of syphilis in a certain percentage of cases. But none of the people giving a positive serological result in this series was in an attack of, or was convalescent from, malaria, so far as could be ascertained from the medical records and history of the patients.

For the above reasons it is considered that leprosy, yaws, and malaria may be ruled out as possible causes of non-specific serum reactions in this investigation.

(C) RESULTS

TABLE VIII.—*Wassermann and Kahn Tests (957 Male Indian Labourers)*

Positive			Doubtful		
Interpretation	No.	%	Interpretation	No.	%
W.R. ++ or +	95	9.9	W.R. + −	37	3.9
Kahn ++ or +	88	9.2	Kahn + −	25	2.6
W.R. ++ or + or Kahn ++ or +	104	10.9	W.R. + − or Kahn + −	42	4.4
W.R. ++ ; K − W.R. + ; K + − W.R. + − ; K + W.R. − ; K ++	101	10.6	W.R. + − ; K − or + − W.R. − or + − ; K + −	45	4.7

On the above results it may be stated that those who are definitely syphilitic constitute, in round figures, 10 per cent. of the 957 males examined.

TABLE IX.—*Wassermann-positives in 809 Immigrants whose Length of Time in Malaya was Ascertained*

Time in Malaya	No. Examined	W.R. Positive	
		No.	%
Under 1 year	116	12	10.3
Over 1 year	693	68	9.8

The ratio of the age groups one to another was the same in this 809 as in the 957 in Table VIII. Those under one year in the country showed a larger relative number under the age of 45.

Discussion

Table IX, though of interest, does not embrace groups large enough to be of real significance. No very positive conclusions can therefore be drawn from it. The results of the tests in Table VIII show that 10 per cent. of 957 male Indian coolies are syphilitic. These people were unselected, and constitute a sample of the best-cared-for group of labourers in the F.M.S.—the Indian estate and Government labourers. In India, it is pointed out by Sir John Megaw (1936) that there is a lack of accurate knowledge of the prevalence of the venereal diseases, and that prevalence varies a good deal from place to place. He says "one might hazard a guess" that 10 to 20 per cent. of urban dwellers and 5 to 10 per cent. of rural dwellers in India would be Wassermann-positive. The Surgeon General, Madras (1932–4) says that the incidence of venereal disease in rural parts of Madras is very high, being 50 per cent. or more among the poorer classes. As the great majority of the Indians investigated were from Madras it is not surprising that the prevalence of syphilis is high.

Of recent years many serological studies have been undertaken in other countries. Some of these are given below for comparison.

Country	People Examined	Result %	Author
Ceylon ..	600 consecutive cases appearing at the Pasteur Institute for anti-rabies treatment	Total 10.2 Males 12.2 Females 5.5	Leanage (1936)
East London	1,002 unselected cases attending a general hospital	Total 8.3 Males 10.3 Females 5.1	Paul Fildes and James McIntosh (1916)
Nanking (China)	General hospital patients (Chinese), irrespective of disease	Total 17.5 Males 17.3 Females 18.2	Wang, Shen, and Chang (1937)
Tennessee (U.S.A.)	Random sample of population	Whites 1.69 Coloured 10.8	Roberts and Williams (1937)

Amongst Indian women Reed (1935) found 10 per cent. positive serologically in selected cases, and the Municipality of Singapore Health Report, 1934, shows 17.65 per cent. positive in Indian women whose babies had died and been certified by lay inspectors as other than syphilitic. Furthermore, in the same report Muriel G. G. Clark states that venereal disease can be taken as one of the chief factors in the causation of stillbirths, premature births, etc., in Singapore. These are all selected cases, however, and conclusions as to prevalence are likely to go astray if based on them. Routine serological tests in ante-natal clinics would help to supply more correct figures. The syphilis prevalence rate among Chinese is probably higher even than that among Indians. Kingsbury (1936) gives results of a serological survey of inmates

of Singapore gaol, and the ratio of positives, Chinese to Indians, was 29 to 18. Applying this to the rate for Indians of 10 per cent., the rate for Chinese would be 16.6 per cent. The social conditions of Chinese also favour a higher prevalence of syphilis and gonorrhoea. As to the Malays, there is little evidence at present of widespread venereal disease among them. The fact that their conditions of life are such as to favour a lower prevalence than in the case of Indians or Chinese lends support to this view. Further investigation is, however, required.

Conclusions

Examination of conditions at present in the F.M.S. shows:

1. (*a*) That social conditions in the population vary from race to race; that these conditions are such in relation to Chinese, Indians, and Malays as to favour, in varying degrees, the prevalence of venereal disease; and that disease probably exists in decreasing amounts among them in that order. (*b*) That the Medical Department's report of a fall in incidence in venereal diseases in the F.M.S is not necessarily true if based on the evidence in the Annual Reports of the Medical Department, F.M.S.

2. That the incidence of syphilis among Indian male labourers is in the region of 10 per cent.

3. That enough evidence is available to warrant a survey of the whole question and the closest investigation of it with a view to the control of venereal disease.

I have to thank Dr. H. M. Nevin of the Institute for Medical Research, F.M.S., who carried out the serological tests; Dr. J. G. Reed, medical officer to the estates, for his co-operation; and also the estate managers, who gave me every assistance.

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L. Bordoli (*Minerva med.*, 1939, **30**, 54) states that among 205 cases of peptic ulcer treated at the Institute of Clinical Medicine of Milan University, evidence of syphilis was found in seventeen (8.5 per cent.). This is not very different from the incidence of syphilis in the population generally. Of these seventeen syphilitic patients 76 per cent. had duodenal ulcers. The nervous system was involved in 35.3 per cent., the proportion being most marked in cases of gastric ulcer. In 47 per cent. of the cases of peptic ulcer in syphilitic patients simple albuminuria was present without any other renal manifestations, and could be attributed to lesions in the renal vessels. Enlargement of the liver was found in 23 per cent. In 41 per cent. there was a well-marked lymphocytosis. There were no special radiological signs and the symptoms of peptic ulcer in the syphilitic were almost the same as in the non-syphilitic. Tabetic crises were present in only 11 per cent. Investigation of the gastric juice showed that hyperchlorhydria was present in 70 per cent., while in the rest the acidity was normal; in no case was there hypoacidity.

ARTERIAL EMBOLECTOMY

WITH NOTES OF A CASE

BY

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Arterial embolism is not a common condition, and cases which come to operation early enough to be successful are so rare in this country as to make a case of embolectomy worthy of record. Riddell (1937) found that only twenty cases of embolectomy had been reported here, of which eleven had been successful; while in Sweden 382 cases were reported up to 1936 (Key, 1936), and of these eighty-six (22.5 per cent.) were successful, sixty-nine (18.1 per cent.) required subsequent amputation, and 227 patients (59.4 per cent.) died in hospital. Seventeen of the cases were aortic, and three of these (17.7 per cent.) were successful, while of the sixty-six iliac cases ten (15.1 per cent.) were successful. The discrepancy in the number of cases in the two countries is rather striking, and would almost suggest that in Sweden the possibility of such an emergency arising is more often considered in differential diagnosis than in this country, so that a greater number of cases come under the surgeon's care.

In the case recorded below the appearance of three smaller emboli before the large arterial embolism occurred made the diagnosis easy, but one can well imagine that the signs might be somewhat confusing had an embolus not been considered. This case, as the post-mortem report shows, had a multiple pathology, to which the patient succumbed two months after the operation; but the circulation in the legs still remained good when he was last seen alive, six hours before death.

Case History

An asbestos weaver, aged 46, on permanent compensation for asbestosis since February, 1938, was in bed from July 3, 1938, with severe dry bronchitis and auricular fibrillation, partially controlled by digitalis. On July 7 he had a sudden severe pain in the right loin spreading across the abdomen at the level of the umbilicus, and for the next twenty-four hours he passed very little urine, but this, however, was never blood-stained; the right kidney area was exceedingly tender, the pain necessitating the use of morphine. A diagnosis of renal colic was made, which in the light of later events was changed to that of a renal infarct. The pain gradually subsided in the course of two or three days.

On July 12 he had a sudden severe pain over the lower lobe of the right lung in the axillary line; there were physical signs of an infarct. On July 15 he had a similar pain, but less definite signs, over the left lower lobe. (The post-mortem examination disclosed a splenic infarct.) On the morning of July 17 the patient was slightly better, the pains having subsided. At 6.45 p.m. he awoke from sleep with a sudden agonizing pain in the lower abdomen, which spread down the left leg to the toes, and then similarly down the right leg, his legs becoming practically powerless. Seen at 7.15 p.m., he was collapsed: his pulse was 120 and irregular, and he was obviously in severe pain. From the level of the pubes to the toes both legs were dead white and corpse-like, the superficial veins showing as furrows instead of ridges; the skin was cool, but, owing to his shocked condition, not very different from the rest of his body. There was a faint pulsation in both femoral arteries, palpable to about the middle of Scarpa's triangle, but no pulsation in the lower arteries. The right femoral pulse had slightly greater volume than the left. He stated that his legs were useless; he was able to flex

them fully, but could not extend them again. The knee-jerks were absent. A diagnosis of aortic embolus was made, and he was removed to the Rochdale Infirmary for operation.

When seen in hospital at 8.15 p.m. his general condition was unaltered. The pain in the legs was slightly less severe, but the movements were restricted to 20 degrees of flexion of the knees. The femoral pulses were now visible only where the arteries crossed the pubic arch, but could not be palpated at all.

Operation

Operation took place at 8.45 p.m. In view of the situation of the embolus a spinal anaesthetic was administered, the patient being turned on his left side. Five minutes later he was free of pain and the right femoral artery was found to be beating with a normal impulse, the right leg having regained its normal circulation. The left femoral pulse, however, was now neither visible nor palpable. Incisions were made over both femoral arteries just below Poupart's ligament and the arteries exposed and cleared of adventitia down to their division into superficial and deep branches. It was found that on the left (obstructed) side the artery divided into three branches at this point, one deep and two superficial, all of equal size. Temporary ligatures by the Gordon-Taylor method, with tape and a one-inch length of rubber tubing, were applied to both arteries at the lower end of the exposed length. A third incision, five inches long, was made on the left side, one and a half inches above and parallel to Poupart's ligament, dividing all muscles in the line of incision until the peritoneum was exposed. This was then wiped back, and gave a perfect exposure of the iliac vessels right up to the lower end of the aorta. It was seen that the embolus was lodged at the junction of the internal and external iliac vessels, the artery bulging and firm to the touch, the external iliac artery below this point being empty and contracted. About three-quarters of an inch above the junction the common iliac artery was pulsating normally; the lower end of the aorta was normal.

The embolus was broken up by the fingers and gradually milked into the external iliac artery. When the whole had apparently been dislodged, a temporary clamp, consisting of Allis tissue forceps with the blades covered with fine rubber tubing, was applied to the external iliac artery just below the junction with the internal iliac. The wound in the left thigh was then flooded with a 2 per cent. sodium citrate solution and a longitudinal incision made in the common femoral artery just below Poupart's ligament, a fine silk stay suture having been passed through the outer coats of the vessel on each side of the incision. The embolus was then milked down and delivered through the femoral incision, appearing as two pieces of white thrombus 3/8 inch by 1/8 inch, and a mass of secondary red thrombus. The lumen of the vessel was washed out with citrate solution and the clamp on the external iliac artery temporarily released, there being an immediate spurt of blood. Temporary release of the lower ligature showed a small retrograde flow from the lower end. The incision in the femoral artery was sutured with mattress sutures of fine silk smeared with petroleum jelly and the clamps removed. There was no pulsation!

Examination disclosed that a further embolus had become impacted at the junction of the internal and external iliac arteries. The incision in the femoral artery was reopened and the embolus milked down and removed as before. This second embolus was also a white thrombus, 1/2 inch by 1/8 inch, with a considerable quantity of secondary thrombus. On resuturing the femoral artery and removing the clamps pulsation occurred normally in the limb and was palpable in the popliteal artery. A slight ooze from the suture line in the femoral artery was controlled by a muscle graft from the abdominal incision. The incisions were all rapidly closed and the patient returned to bed in fair condition, with the temperature 98°, pulse 104, and both legs warm and a good colour.

The next day he could move both lower limbs, and knee-jerks had returned. The wounds all showed a slight degree of sloughing around the sutures, but were completely healed in four weeks in spite of his developing a large lumbar carbuncle in the third week, accompanied by several smaller ones on the scalp. The cardiac condition improved, and the heart became and remained regular on digitaline nativelle 1/600 grain daily. He returned home in five weeks, but his general condition kept him in bed. His heart subsequently failed, and he died on September 16, just two months after operation.

Post-mortem Findings

Left lung: A fine generalized fibrosis was present; the pleura was normal except for a few apical adhesions. *Right lung:* This was solid throughout; all fibrous septa were thickened, thick muco-pus was found in the bronchi, and the glands at the hilus were enlarged. At the base there was an old infarct 1½ inches by ¾ inch. Small ante-mortem clots were present in the large vessels. The pleura was very thickened, and was completely adherent to the parietal pleura. Microscopically, sections from near the hilus showed an adeno-carcinoma apparently derived from a bronchial mucous gland and typical asbestos bodies.

The *heart* was dilated, with thin brown muscle and a large friable ante-mortem clot in the left ventricle. The *spleen* was slightly enlarged, and had an old infarct at the lower pole. The *kidneys* showed much cloudy swelling, with a narrow cortex; an old infarct was observed at the upper pole of the right kidney. There was a large "nutmeg" liver, but no secondary nodules were present in it. From the aortic bifurcation down, both *common iliac* and *common femoral arteries* contained loosely adherent ante-mortem clot; the suture line was healed in the left femoral artery, and the lumen of the artery was apparently normal.

Discussion

The onset, signs, and symptoms of this case appear to have followed the classical lines of *pain, pallor,* and *paralysis,* but as it was seen and operated on at an earlier stage than most cases of which I have been able to find records a few points would seem worthy of comment. Most authorities agree that, if possible, local anaesthesia should be the method of choice. This is not possible with iliac or aortic emboli, but in the present case the use of a spinal anaesthetic appears to have had definite advantages, as the relaxation of arterial spasm by the anaesthetic permitted the embolus to slip into the left common iliac artery (the patient being on his left side for the spinal injection), rendering any opening of the right femoral artery unnecessary. In this connexion one has to note that the operation began only two hours after the embolus became impacted, and presumably, had it been delayed much longer, increasing damage to the intima would have caused the embolus to become more adherent, thus lessening the possibility of the displacement of the embolus by the relaxation of spasm after anaesthesia, though not necessarily impairing the chances of a good end-result, for most of the successful reported cases have gone as long as four to six hours before operation.

This early case confirms Jefferson's (1934) view that the signs are present immediately the embolus becomes impacted; but an interesting feature was the feeble femoral pulse palpable down to the middle of the thigh in both legs when the case was first seen, half an hour after impaction, and the fact that an hour later the femoral pulses were still present, but this time only where the arteries crossed the bony pelvic ring, and then merely visible and not palpable. Comparing the sizes of the various portions of the embolus with the lumen of the arteries concerned, it is obvious that only a slight degree of mechanical obstruction can be present when the embolus first becomes impacted, and the amount of

arterial spasm which is set up by the impaction must be very great to cause immediate symptoms of such severity.

This disparity in the size of vessel and the embolus obstructing it would suggest that in all cases of arterial emboli in the early stages the obstruction is almost entirely due to arterial spasm, and it is only with the passage of time and the increasing formation of secondary thrombi that the actual mechanical obstruction becomes a potent factor. In this case the gradual weakening of the femoral pulses was no doubt due to the increasing mechanical obstruction from secondary thrombosis. When, however, an embolus does not stop until it reaches a smaller vessel it will naturally act as a mechanical obstruction as soon as it becomes impacted, as no doubt happened with every case of infarction. Key (1936) states that as a rule no pulse is found below an embolus, and, taking into consideration the reduction in volume of the pulse which took place during an hour in the present instance, one can well imagine that in another hour it would have disappeared entirely.

In this case secondary thrombosis began at an early stage. According to Key (1936) the time of its onset varies very greatly; he has seen it start in less than two hours, but he also reports a case, operated on after eleven days, in which no secondary thrombosis was present. It seems to be generally agreed, however, that after about six hours secondary thrombosis will have advanced to such a degree as to render the success of the operation very doubtful, and that after this period more or less gangrene is certain to occur in the affected limb.

The most disconcerting feature of this case was the reblocking of the iliac artery after release of the clamp had shown the lumen to be clear. The probable sequence of events is most easily followed by reference to the diagrams. In Fig. A the embolus is shown hanging over the bifurcation of the aorta at a period when the arterial spasm was the chief cause of obstruction. By the time the anaesthetic had been given the secondary thrombosis had increased to such a degree that, when the spasm relaxed, the renewed flow of blood into the iliac arteries detached a portion of the embolus and secondary thrombus and swept it into the left common iliac artery, where it was again held up at the junction of the internal and external iliac arteries, this time causing a definite mechanical obstruction of the arteries of the left side. A small portion of the embolus must have remained adherent to the bifurcation of the aorta (Fig. B). In Fig. C it is shown that while the embolus in the left common iliac artery was being dealt with the secondary thrombosis around the small portion of embolus still at the bifurcation was increasing, so that when the clamp was temporarily released to show the patency of the lumen the sudden flow of blood past this now quite large mass at the bifurcation of the aorta detached it, and it became impacted in the same situation as the main portion was before removal (Fig. D). Had the right femoral artery not had a temporary ligature around it throughout the operation this second portion of embolus would quite possibly have been detached sooner, and have travelled down the right side, necessitating an incision into the right femoral artery for its removal.

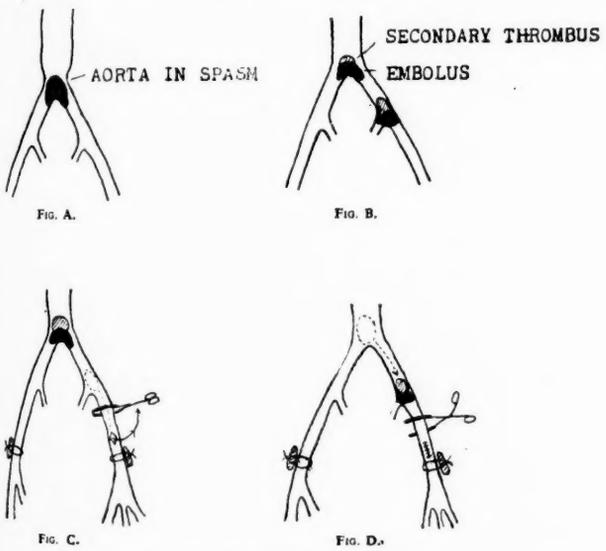

FIG. A. FIG. B.

FIG. C. FIG. D.

FIG. A.—The original condition.
FIG. B.—After giving the spinal anaesthetic: no spasm.
FIG. C.—Removal of the embolus.
FIG. D.—Release of clamps dislodges the second portion from the bifurcation.

The carcinoma of the bronchial glands in the right lung was not discovered during life, and in fact there was such severe bronchitis during the last four months that detailed examination of the lung condition was very difficult. The infarcts in the right kidney and right lung were in the expected situations, but the infarct in the spleen was interesting in that at the time it occurred it was thought to be actually at the base of the left lung. The ante-mortem clot found in the left ventricle was of such a size as to indicate an almost inexhaustible source of further emboli had the patient not succumbed to his other conditions.

A recent paper by Griffiths (1938) describes the first successful British aortic embolectomy. His case occurred in 1935. Although at operation my case was dealt with as a left iliac embolectomy, it can, I think, justifiably be classed as an aortic embolus "riding" the aortic bifurcation in the first instance and being displaced into the iliac vessels during treatment.

Summary

A case of aortic embolus becoming iliac at operation is described, with a full account of a successful embolectomy. The advantages of early diagnosis and operation are stressed.

I have to thank Dr. F. J. Knox for his assistance with the operation and his advice, and for criticism of this paper. Thanks are due also to Dr. C. E. Jenkins of Manchester for his report on the post-mortem findings.

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The fifth International Congress for Life-saving and First Aid to the Injured will be held at Zürich and St. Moritz from July 23 to 28, nearly five years after the last congress in Copenhagen. The programme will include the consideration of international aid in major catastrophes, including rescue work and first aid on the high seas, in the air, on railways, main roads, and such other subjects as the restoration of normal breathing, gas poisoning, and the special training of medical practitioners, lay assistants, and ambulance men. All inquiries should be addressed to the secretary of the Industrial Welfare Society (Mr. G. L. Perry), 14, Hobart Place, Westminster, S.W.1.

THE SUPINE POSITION IN EMERGENCY TREATMENT OF PATIENTS WITH FRACTURED SPINE

BY

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The prone position for the transport and emergency treatment of fractures or fracture-dislocations of the dorso-lumbar region of the spine was advocated by Watson Jones in 1931 and has been widely adopted since. Most modern textbooks, however, while paying great attention to the pathology and final fixation of the injured spine, either omit emergency treatment or dismiss it in a few lines: this important part of the treatment is not even mentioned by one well-known authority on the treatment of fractures. The initial management of spinal injuries has its own peculiar difficulties, which must be emphasized. I shall endeavour to show that adoption of the prone position before final immobilization of the spine in plaster has many disadvantages and that use of the supine position, subject to the precautions to be described, is preferable.

With regard to the rationale of the prone position, it is advocated that because the spine is held hyperextended the fragments are unlikely to be displaced and to injure the cord or, if the cord is already injured, further damage will not take place. There are disadvantages, however.

Disadvantages of the Prone Position

Diagnosis of the Original Lesion.—Diagnosis of a fractured spine made either at the time of the accident or in the casualty department of a hospital may be incorrect. Fractured pelvis, with or without intra-abdominal complications, and fractured ribs have often been the cause of error, and on such occasions use of the prone position may be harmful. Moreover, in spite of insistent instructions to the contrary, a patient with a fractured cervical spine is occasionally brought into hospital in the prone position because of the association of this posture with the first-aid treatment of spinal injuries.

Associated Injuries.—The prone position is contra-indicated in the treatment of head injuries, fracture of the ribs or of the pelvis, fractured legs, and abdominal injuries, any of which may complicate the treatment of a fractured spine.

Transport.—If the prone position is used the patient is moved bodily on several occasions from one site to another without any adequate fixation of the spine. The number of transferences may vary from five to eight. The patient is first lifted from the ambulance trolley on to his bed, then subsequently from his bed on to the trolley again to be taken to the *x*-ray department. In most hospitals lateral radiographs of the spine cannot be taken satisfactorily with a portable *x*-ray machine and must be done in the *x*-ray department; four transferences will be required for radiographic purposes alone. After the patient has been wheeled back to the ward three more movements are necessary before he can be immobilized in plaster.

Nursing.—The prone position is not easy to maintain, and constant supervision is essential for its success. Nursing is much more difficult when the patient is prone, especially if acute retention supervenes and the patient has to be catheterized.

Comfort of the Patient.—The prone position is not well tolerated by many patients, who consequently lie curled up on their sides, and there is little doubt that they are far more comfortable when lying supine, and fixed in the manner to be described, than when they are prone. The advantages of the fixed supine position are more especially noticed in those patients with complications.

Treatment in the Supine Position by Means of a Special Frame

The frame first used was a modification of the Bradford frame. It was made of well-padded metal tubing covered with stout canvas in two detachable sections, with a six-inch gap between for nursing purposes, and was angulated opposite the dorso-lumbar region of the patient (the commonest site of the fracture) sufficiently to hyperextend the spine to about 25 degrees. Special webbing straps were used to fix the patient to the frame. One or two disadvantages became apparent in the use of the metal frame. The site of angulation could not easily be adapted to coincide with fractures other than those in the dorso-lumbar region. The metal bars sometimes obscured the laminae and spinous processes when a lateral radiograph was being taken. These difficulties have been overcome by means of a special wooden frame curved longitudinally (Fig. 1). The curve forms an arc of a circle, such that

FIG 1.—The curved wooden stretcher frame.

all regions of the spine of a patient lying supine are thrown into a moderate degree of hyperextension. The use of wood in the construction of the frame permits satisfactory radiography of the spine without disturbing the patient.

The Wooden Stretcher Frame

The side-pieces are of stout steam-bent ash with the extremities moulded to form the handles. The body of the frame is made of five-ply wood securely fixed to the side-pieces and following the same curve. An oval window with a shutter attachment on the under surface of the stretcher is placed in the midline at a suitable distance from the head end for nursing purposes (Fig. 2):

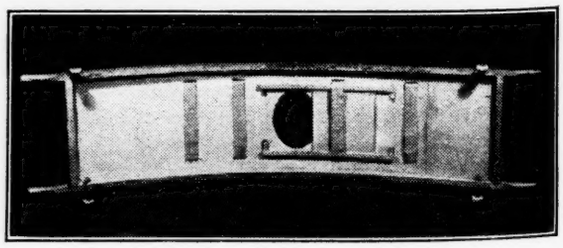

FIG. 2.—The inferior surface of the frame

this measurement is thirty-four inches. Four webbing straps secure the patient to the frame; one is placed at the level of the nipple line, another at the level of the waist, one midway down the thighs, and a fourth midway down the tibiae. Two solid rubber wheels are fixed at each end and are so situated that a distance of twenty-one

inches separates the axle centres, thus enabling the stretcher to be used in the standard ambulances.

The over-all length of the stretcher is eighty-two inches, the curved length of the body is seventy-three inches, the width nineteen inches, and the maximum depth twelve inches; thus it is large enough to accommodate any average adult male, most of the patients under discussion coming into this category. The weight of the frame is 21 lb., which is appreciably lighter than the regulation ambulance stretcher.

Method of Using the Frame

Any patient with a suspected spinal injury, whatever the complications or associated injuries may be, should be fixed on the frame as soon as possible after receiving the injury (Fig. 3). Transport is extremely simple, and there

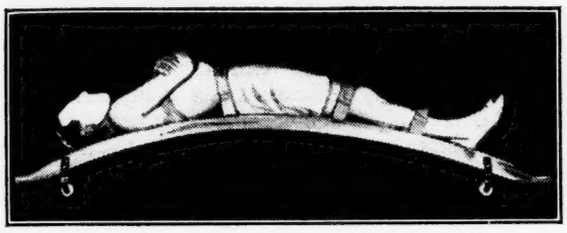

FIG. 3.—Showing the patient strapped in position.

is no occasion to disturb the patient from this time until his spine is finally immobilized in plaster. Nursing problems are reduced to a minimum. The method described has been used at the General Infirmary at Leeds in all cases of suspected spinal injury, and has proved of real value. During the past two years eighty-two cases of suspected or definite spinal fracture have been treated in this manner from the time of their admission to hospital; fourteen of the patients were fixed on the wooden frame.

As yet the frame has not been used for cases before admission to hospital, but permission has been obtained from Dr. Jervis, the medical officer of health for Leeds, for it to be given a trial in the Leeds municipal ambulance service.

Conclusions

The supine position is to be preferred for the transport and emergency treatment of patients with fractured spines, provided that the spine is hyperextended and immobilized at this stage of the treatment.

A special frame should be used.

It is suggested that the method be adopted in first-aid treatment in mines and other centres where fractured spines are likely to occur, the frame being used instead of the customary stretcher. The frame may also find a place in the routine equipment of the larger ambulances.

I wish to thank Mr. Broomhead for his permission to use the method in the orthopaedic department of the General Infirmary at Leeds.

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A. W. Pot and H. Verhagen (*Nederl. Tijdschr. Geneesk.*, 1939, **83**, 276) record the case of a woman, aged 44, in whom the clinical picture was that of hepatitis. *Bact. paratyphosum* A was cultivated from the bile obtained by duodenal intubation and after clinical recovery from the stools, but during the disease repeated bacteriological examinations of the faeces were negative.

Clinical Memoranda

Further Note on a Case of Chronic Leptospiral Meningitis

Two years ago I described a case of chronic leptospiral meningitis in which, by guinea-pig inoculation, the organism was recovered from the patient's cerebrospinal fluid and urine six and eight months respectively after the onset of the original attack of Weil's disease (Murgatroyd, 1937). These findings were so at variance with preconceived ideas that at first criticism was raised that the guinea-pig infections were perhaps extraneous infections such as described by Mason (1937), who recorded a fatal case of leptospiral jaundice in one of twelve guinea-pigs received from a dealer who ten days previously had had two or three of his stock animals attacked and killed by rats.

The criticism was dismissed for the following reasons. First, none of the animals maintained in the laboratory suffered from leptospirosis excepting those deliberately inoculated with material obtained from the patient or used for the subsequent passage of the strain. Secondly, during convalescence, inoculation of the patient's urine into guinea-pigs ceased to be followed by infection in the animals. Thirdly, after the administration of anti-leptospiral serum the patient progressively improved, whereas previously he was steadily deteriorating. Fourthly, the patient's original illness, the subsequent clinical condition, and the associated laboratory findings were in harmony with the diagnosis of a leptospiral infection and failed to confirm any alternative diagnosis.

CONFIRMATION OF THE DIAGNOSIS

Recently further confirmation has come to light. Some time ago—more than two years since treatment with immune serum—an opportunity arose of re-examining the patient, and his serum was then found by Major Brown to agglutinate leptospira to a titre of almost 1 in 1,000. It may be argued *a priori* that such a titre might represent passive immunity conferred by the original dose of immune serum. Schüffner (1934), however, found that the agglutination reaction remained negative after the administration of anti-leptospiral serum to patients who were not suffering from leptospirosis. Robertson (1938), recently discussing four cases of Weil's disease, also quotes Brown's opinion that the appearance of a strongly positive agglutination reaction in one of his cases after a negative finding two days earlier could not have been due to the immune serum given in the interim. In the present case not two days, but two years, had elapsed since serum was given, and there is some evidence, from the observations of Dean, Goldsworthy, and Broeck (1930), that heterologous serum disappears from the circulating blood with extreme rapidity. Furthermore, taking into account the dose and titre of the anti-leptospiral serum originally used for treatment, the resulting passive titre of the patient's blood would more likely have been 1 in 3 than 1 in 1,000, even assuming all the serum reached and remained in the patient's plasma.

There are no grounds, therefore, for believing that the patient's high titre represented passive immunity, while there is every reason for assuming that it resulted from active infection. This must not be thought to mean that the serum played no part in the patient's recovery. Indeed, the complete change in the course of events that followed its administration leaves no doubt that in some

way, however obscure the precise mechanism may be, it enabled the body defences to come into effective action.

The present observation and the evidence already summarized provide overwhelming proof that the patient had acquired a leptospiral infection which remained active for more than eight months.

London, W.1. F. MURGATROYD, M.D., D.T.M.

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Hormone Treatment of Undescended Testes

Owing to the present prominence of endocrine preparations the following case may be of clinical interest.

CASE REPORT

Recently I examined a child aged 4, a good healthy specimen, but with both testes absent from the scrotum and not palpable in the inguinal canals. The mother had heard of an injection treatment and asked me to give it. I chose the preparation pregnyl (Organon Laboratories), a trade name for an anterior pituitary preparation akin to the antuitrin-S of Parke, Davis and Co. and like preparations from other laboratories.

I started, and continued, with bi-weekly injections of 500 rat units. After the fourth injection the left testicle was comfortably embedded in the scrotum. Two days afterwards I was sent for and found the child screaming with pain and very tender in the lower right abdominal quadrant. There was a temperature of 103° F., with a moderate increase in the pulse rate. I could not make a rectal examination. The condition was suggestive of some acute abdominal crisis, possibly appendicular, but on observation the pain was definitely paroxysmal with free intervals, although marked tenderness to palpation always persisted in the quadrant. Furthermore, when the pain was severe the patient insisted on standing up, screaming and stamping his feet.

It then struck me that the right testis might be responsible for the whole clinical portrait. Owing to the remarkable stimulating power of the preparation there was in all probability a greatly increased metabolism in this testis, with vascular engorgement, increased nerve stimulation, and possible mechanical movement, akin to a commencing torsion. Having stopped further injections I watched the case for another week, but the condition remained much the same, the child running an average temperature of 102°–103°, with a moderate increase in the pulse rate. I decided against surgical intervention, and at the parents' request sent the child to a Dublin surgeon with the case history. Again operation was deferred, but was finally performed, and the testis brought down into the scrotum. At this date, apart from some engorgement of the organ, there was nothing else abnormal, and no abdominal crisis revealed itself.

COMMENTS

Some points that arise from a consideration of the above case are:

The remarkable potency of an active preparation of anterior pituitary substance and its intimate association with the gonads.

The question of a possible optimum age at which injection with full dosage might be started, so far as one can interpret full dosage, without untoward symptoms.

The cause of the temperature. To me this point was very intriguing. Was it due to a "fierce" general metabolic activity with its nucleus in the testis? If so, not alone was the preparation a cure for undescended testes: it was also a method of bringing on an artificial pyrexia!

Redcross, Co. Wicklow. M. F. MCELLIGOTT, M.B., B.Ch.

Reviews

UNUSUAL HAPPENINGS IN OBSTETRICS

The Abnormal in Obstetrics. By Sir Comyns Berkeley, M.A., M.C., M.D., F.R.C.P., F.R.C.S., M.M.S.A.Hon., F.C.O.G., Victor Bonney, M.S., M.D., B.Sc., F.R.C.S., F.R.A.C.S.Hon., M.R.C.P., and Douglas MacLeod, M.S., M.B., F.R.C.S., F.R.C.P., M.C.O.G. (Pp. 525; 6 figures. 18s. net.) London: Edward Arnold. 1938.

This is an unusual book, and it deals with the unusual happenings in obstetrics. The authors assume that the reader has a sound knowledge of anatomy, physiology, and the conduct of normal labour. They also assume that he is well versed in medicine and surgery, and that he is a competent operator. There are no illustrations and operative technique is not discussed. As the result of this policy the authors have been able to devote their energies to collecting and detailing an extraordinary variety of diseases and abnormalities complicating childbirth. But the book is more than a mere compilation of abnormalities: on almost every subject the authors are able to give valuable advice, and there is a pleasant personal touch which adds greatly to the interest of the writing. The commoner abnormalities receive adequate treatment, but the scope of the book is realized when conditions so rare as splenic anaemia, intestinal obstruction of the unborn foetus, and even hydrophobia in labour are discussed in some detail. The book should undoubtedly find a place on every obstetrician's bookshelf. It is brimful of information that cannot be readily gained elsewhere.

Criticism is both easy and difficult. If complaint is made that information is lacking on certain important subjects there is the easy excuse that the reader is assumed to have a knowledge of the contents of standard obstetrical textbooks. But the authors cannot have it both ways. Certain sections are merely an indifferent résumé of well-known facts. Thus the chapter on the female sex hormones is good, but it is no better than the account given in many recent textbooks for the student. Such sections should either be eliminated or else considerably augmented. Although there is an appendix listing relevant literature, there are, unfortunately, few specific references in the text to these publications. Thus it happens that the reader is often in doubt whether some unusual statement is made on the authority of the writers' experience or whether it is merely an expression of opinion borrowed from the writings of other workers. This is a serious fault. It annoys the reader and it weakens the authority of the work. Such a style can be condoned in a student handbook but not in a work which professes to be a scientific treatise.

So much by way of criticism. This is an important book; it is a mine of information and is certain to gain a wide circulation.

ANTI-MALARIA MEASURES IN THE CAMPAGNA

L'Opera del Comitato Romano per l'Assistenza Antimalarica, dal 1921 al 1935. (Pp. 95; 47 figures, 1 map. No price given.) Rome: Luigi Proja, Via Emilio Faa di Bruno 7. 1938.

One cannot do full justice to the work of the Roman Antimalaria Committee, a report of whose activities in the first fifteen years of its existence is presented in this book, without a few words by way of preface on the conditions

in the Agro Romano and neighbouring parts of Italy before the committee took matters in hand, for bonification of the Roman Campagna is an outstanding example of the triumphs of modern anti-malaria measures on a large scale. Engineering schemes have been tried there repeatedly since the beginning of the nineteenth century. In 1824, 1828, and 1856 drainage works were undertaken; in 1831 stagnant waters were to be led away by reopening the old *cloaca maxima*, and flooding was to be guarded against by a series of quays along the Tiber; tobacco, indigo, rice, and cotton were to be planted, and the Pontine Marshes were to be canalized. All these had to be abandoned because of the cost.

In 1918 the Office of Works began a survey, and in 1924 a start was made in real earnest. Natural watercourses were regulated and stagnant pools eliminated. By 1931 the upper waters had been canalized and led to the sea; the land was divided into holdings, farmhouses built, and the peasants instructed. Part was on the *métayage* system, by which the tenant pays a moiety of the produce as rent to the owner, who furnishes the stock and seed. A travelling cinema proved useful for propaganda, illustrating the dangers of malaria, its treatment and prevention; quinine was distributed to the children, and, apart from the hydraulic bonification, farming, and cultivation mentioned above, doors and windows were screened. Arrangements were made for early diagnosis of cases and prompt treatment, and carriers were followed up. Houses were inspected repeatedly for anopheles and disinfected if necessary.

The activities of the committee were applied to the Agro Romano, Agro Pontino, Lazio, Lucania, and the Province of Frosinone. The story is practically the same in all; one example will suffice. The rapid increase of the population is shown in the Agro Pontino, where in July, 1924, they numbered 1,800, nine years later 40,430, while the morbidity rate fell to 2.09 per cent. and the death rate to 0.34 per mille. In Città Giardino, with a population of 1,100, of whom 400 were permanent and 100 to 120 of them children, there were in 1934 three primary infections and eight relapses, and in the succeeding years 0 and 4, 0 and 4, 0 and 1, respectively. In August, 1933, Torre Olevola, formerly a stagnant marsh and malaria-ridden, was inaugurated as a seaside colony for the children of the settlers.

This book is a record of a truly wonderful achievement, and is abundantly illustrated.

H. H. S.

PERSONALITY

Personality in Formation and Action. By William Healy, M.D. (Pp. 204. 8s. 6d. net.) London: Chapman and Hall. 1938.

This scholarly account of the formation of personality was the subject of the Salmon Lectures for 1937. Dr. Healy, out of his vast experience of the personality both of children and adults, is particularly well fitted to speak authoritatively on this difficult subject. He does not think that personality can be discussed intelligently from either the physiological or psychological aspects alone, but both have much to say about it. Attention is drawn to hereditary chemical and nutritive factors, and how in virtue of the power of the living organism to choose from its environment it gradually outfolds to meet the demands of the environment, often establishing a circular response with it.

The author then discusses the great influence of unconscious motivation in behaviour, and remarks how illuminating biography might be if the lives of prominent people could be treated as are psychiatric case histories. After tracing the development of the personality he points out how we might educate for the future to perfect the adjusted human being. As he says, "It is not in a more extended knowledge of history and science and sociology that we shall find the avenues of betterment of social relationships. Rather it will be through knowing the range of facts centred about the momentous theme of our present discussion [the formation and action of personality] and fusing this knowledge into an emotionally tinged ideology." He takes comfort in all the welter of present-day politics that "while reason proves to be so feeble and emotion so strong, yet reason may be the compass by which the stronger forces are directed."

This little book is "serious reading," but will very well repay the study of all those who are interested in the problems of individual and national stability, and the reader will be rewarded by at least one gem relating to an explanation of modern music.

OTO-RHINO-LARYNGOLOGY

Diseases of the Nose, Throat, and Ear. By W. Wallace Morrison, M.D. (Pp. 675; 333 illustrations. 25s. net.) London: W. B. Saunders. 1938.

The 1938 Year Book of the Eye, Ear, Nose, and Throat. (Pp. 630; 76 figures. Coloured frontispiece. 2.50 dollars; 10s. 6d., postage 6d.) Chicago: Year Book Publishers; London: H. K. Lewis. 1938.

Among the numerous textbooks on diseases of the nose, throat, and ear in a single volume a new one by Dr. W. Wallace Morrison of New York will take a foremost place, because it is the product of active experience in teaching and therefore preserves a sense of realism, because it is well proportioned all through, and because obsolete matters have been ruthlessly excluded, so that there is none of the patchwork effect so often found in the repeated editions of successful works. The author treats each part of his subject in a concise fashion, without diffuse explanations or the quotation of unnecessary case histories, so that the book is really a great storehouse of information and a safe guide to the students and practitioners for whom it is intended. At the end of each chapter are a few references intended to point the way to further research into literature if required, but there is no pretence of a full bibliography. There is no great advantage in calling attention to special sections, as it will be found that any question which arises could be fairly answered from the text, though naturally some sections are fuller than others; but the section on allergy, a matter of constantly increasing importance and concern, is one of particular merit. The work is liberally illustrated by line drawings made by the author. Such drawings made on a blackboard might well suffice to illustrate a course of lectures, but such an excellent text deserves better pictorial support. It is with some diffidence that this criticism is offered, for the drawings themselves must represent many hours of labour by the author, but many are crude and do not give a clear representation of the object. The artistic ability of the author is not equal to his literary capacity, and he will only do himself justice in the matter of illustration if in subsequent editions he discards his line drawings and relies upon a trained artist.

The *1938 Year Book of the Eye, Ear, Nose, and Throat* shows some changes in its composition from the previous volume. Dr. Samuel J. Crowe of Johns Hopkins University has replaced George E. Shambaugh as chief editor of Part II on the ear and of Part III on the nose and throat, but Dr. Elmer W. Hagens of Chicago still col-

laborates in the preparation of these sections. The value of these abstracts is enhanced by rather longer comments than formerly, in which Dr. Crowe gives apposite details of procedure followed at Johns Hopkins. There are, however, a few abstracts in which some essential has been omitted, so that the meaning is not clear without reference to the original paper. As before, this part contains a special subsection on allergy. There is also in addition a Part IV by Dr. James Sonnett Greene of New York City on speech and voice, in which there are eleven full abstracts of papers on speech disorders. Rather more than the first half of the volume is devoted to the eye, and the whole will be found to be no less valuable than previous issues. The high standard of illustration and general production is well maintained.

SCIENCE AND SCIENTISTS

Scientists are Human. By David Lindsay Watson. With a Foreword by John Dewey. (Pp. 249. 7s. 6d. net.) London: Watts and Co. 1938.

In *Scientists are Human* Dr. D. L. Watson has written a curious book. It involves something of a pose, something like striking an attitude, on the part of author and of publishers. The publishers are Messrs. Watts and Co., the general tendency of many of whose books is well known. Dr. Watson's book is a volume in their "Library of Science and Culture," of which series the publishers themselves say: "It will reveal how mankind has sought in science the means of satisfying its varied needs, and how, in turn, science is stimulating fresh aspirations, inspiring loftier deeds of progress, and awakening hopes of increasing mastery over the destiny of the race." Yet the author of this particular volume declares that science is doing nothing of the kind; that it is based upon false foundations and pursued by wrong methods; that scientists are unreliable because they are fallible human beings, and that their conclusions must almost necessarily be suspect because those who discover or formulate them are either exceptional or ordinary. The indictment is not impressive nor are the arguments cogent, though the way in which they are set out is usually interesting and sometimes funny.

Dr. Watson seems to admit a few eminent exceptions, though why this should be so is not very clear; and he appears to hold that workers in other scientific fields are not quite so bad as those who are specializing in physics. He exhibits something of a grievance against these, but again the exact cause or nature of this is not evident, though it is indicated generally in the introduction: "The administrators who have controlled my scientific work, the men whose standards I have had to satisfy professionally, have, almost without exception, had a dash of the humbug in their composition. . . . The Pharisees are firmly established in our modern scientific institutions. It is a very subtle task to detect the real men beneath their scientific masks." In an atmosphere like this perhaps balance and impartiality are not to be looked for. They are certainly not present. There is no harm and some value in emphasizing that the facts and the "laws" of science are inevitably presented to us through the minds of human beings in social surroundings and are conditioned by this. This is one half of the author's thesis; but it scarcely leads to the conclusions that the discoveries of genius should be suspect by virtue of the fact that it is a genius who has discovered them; that a scientific fact is not a truth in itself but is only true because other judges of a like mind agree with it; or that nothing described as an "objective fact" is really so because it has to be set forth in words and symbols which have been socially created. These do not seem to be very valuable observations. The other half of the author's thesis is that science consists fundamentally in the purely intuitional recognition of similarities, that measurement is of little or no value, and that reason and logic have nothing to do with science or it with them. This is an extravagant way of saying that science has its limitations, or even of pointing out that the great scientific discoveries need an imagination akin to that of the poet or the prophet. It is true that scientists may be too dogmatic while science is never final, and that the minds of men—not only of scientists—often do not accept at once a new discovery or absorb a new idea; yet it is surely foolish to blame scientists for such non-recognition and at the same time argue, as the author does, that scientific facts ought to be viewed with suspicion because they are accepted.

The clearest part of the book is the first half of the last chapter, in which the author well states the paramount value of reflecting on direct experience, and the vitiating effects of a narrow specialism. Here, too, he says: "Now that I draw to a conclusion I am conscious of a certain remorse. I have been too severe." Science and scientists will no doubt be able to survive the onslaught; but perhaps the reviewer, in his turn, has failed to discover certain values in the book because they are buried beneath what he regards as its general unreasonableness.

Notes on Books

The work entitled *Through the Leper Squint*, by "Anthony Weymouth," is, as its subtitle states, a study of leprosy from pre-Christian times to the present day. The book, which is attractively written and is intended for the layman as much as, or perhaps more than, the medical reader, contains an account of the disease in Biblical times, with special reference to the descriptions in Leviticus, Kings, and Job; classical antiquity, in which it is mentioned by Aretaeus of Cappadocia, Celsus, Pliny, and Lucretius; the Middle Ages, and modern times. A special chapter is devoted to the Knights of St. Lazarus, whose order was founded by St. Basil in the fourth century for the care of the sick, and lepers in particular, and was dissolved in 1830. Other chapters deal with leprosy in legend and literature, the story of Father Damien, leper colonies of to-day, and the modern treatment of leprosy. The text is liberally interspersed with portraits of Hansen, Danielssen, Sir Leonard Rogers, and Father Damien, photographs of various types of the disease, and other illustrations. Tables dealing with the chronology of leprosy and its incidence throughout the world, and a bibliography of English and French works, are appended. The book is published by Selwyn and Blount, price 12s. 6d.

In a handy little volume, *Dietetics in General Practice*, Dr. LESLIE COLE has given the essentials of the subject. Beginning with a survey of the constituents of foodstuffs and their physiological importance in the economics of the body, he discusses the normal diet, variable as it may be for the individual, the importance of the teeth both for mastication and as a source of hidden sepsis, and gives sound advice to the practitioner in counselling his patient to avoid common dietetic faults. The remainder of the book reviews shortly the indications for diet in the different diseases, the plan of dieting to be adopted, and sample diets which may easily be copied for handing to the patient. In all these the author takes the middle course of orthodoxy: his normal diet contains 100 grammes of protein daily, and his diabetic diets favour adequate but not excessive carbohydrate. Indeed, in the treatment of obesity it may be advisable to cut the diet down more drastically; patients can be persuaded to follow a diet, even an irksome one, if it produces results, and most would not

be satisfied with a reduction of 16 lb. in weight in three months' treatment. The book is sound, clearly written, and to be recommended. It is published at 6s. by John Bale, Sons and Curnow.

In *Garten der Gesundheit* (Berlin: Deutsche Verlags-gesellschaft, RM. 1.50) Dr. MAX WINCKEL has written a novel type of gardening book, in which he approaches the subject from the point of view of an expert in hygiene who wishes to see the health-giving properties of the garden and of gardening made of better use. Like most gardeners Dr. Winckel is a philosopher, and his scientific musings are full of interest.

Thorpe's Dictionary of Applied Chemistry, fourth edition, volume 2 (letters Bl–Chemical), covers a wide range of subjects and includes many biochemical articles of medical interest. These latter fall into various classes. Some deal with the chemistry of the body (articles on blood and bone), others with the chemistry of important foods (bread, butter, cereals, etc.), while many articles deal with the chemistry of drugs (calabar bean, caffeine, calciferol, carbolic acid, cardiac glucosides, etc.). These references indicate the wide range that is covered by this dictionary, which will be found a very useful work of reference by workers in medical sciences who require quick information concerning the chemistry of foods and drugs. The publishers are Longmans, Green, and the price of this volume is 63s.

Cholesterol Content of the Red Blood Cells in Man, by G. C. BRUN of Copenhagen, provides a general review of this subject. The author perfected a reliable micro-method for cholesterol estimation. He found that the red blood cells of patients suffering from cancer showed a significant average increase in cholesterol content, although in half the cases the amount was within the normal limits, while all cases of jaundice showed a definite increase. The book is published in England by H. K. Lewis and Co. at 8s. 6d.

Preparations and Appliances

AN AUTOMATIC SYRINGE

Dr. J. B. Devine (resident medical officer, Royal Melbourne Hospital) writes:

The administration of injections of small amounts of intravenous anaesthetic or remedies over a period is fraught with tedium, inaccuracy, and waste of time when performed in the usual manual way. The syringe here described was designed to give intravenous or hypodermic injections automatically, at any desired rate. It can thus be used for the administration of evipan anaesthesia, adrenaline in cases of asthma, and pressor substances such as veritol and neosynephrine in cases of shock where it is thought unwise to give such substances with large quantities of fluid.

The principle of the apparatus is simple, and is shown in Figs. 1 and 2. Two 10 c.cm. standard syringes, A and B, are used. Their plungers are linked by the bar C. The syringe B actually gives the injection. The syringe A is a hydrostatic control syringe, its flow of liquid being received into the reservoir E. The rate of this flow is controlled by the screw tap F. This regulates the release of the spring G, which forces down the coupled pistons of the syringes. This spring is strong enough to enable any changes in resistance to injection of fluid into the body to be disregarded. H is the needle and tube through which the injection is made. The reservoir E folds down against the frame of the syringe for convenience in transportation. The air-vent tap I can be shut to prevent the spilling of fluid from the reservoir. J is a small clip which serves to fix the spring in any position of stretch while the control tap F is being regulated. The lever K is so arranged that it catches on a serrated bar and clicks as each half cubic centimetre has been injected. For purposes of sterilization the nut D is unscrewed, and this permits the removal of syringe B from the frame. With the exception of the needle and tube, this is the only part of the apparatus which requires sterilization.

The mode of operation is as follows: The tap F and the air vent I are both opened, and the catch J disengaged, and if necessary the reservoir E is filled with water through the air vent I. The control cylinder A is then filled by pulling on

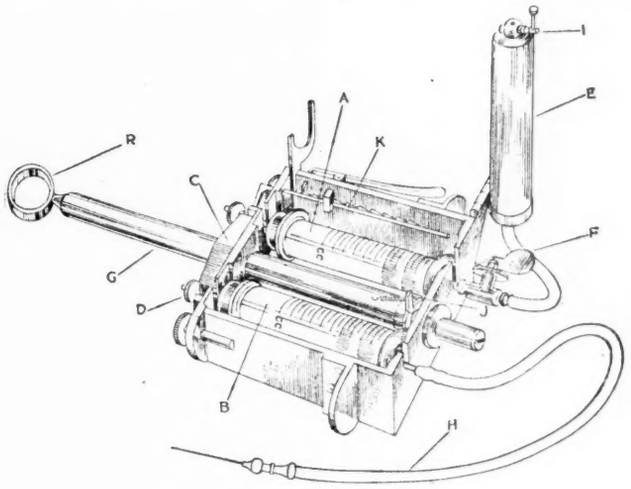


FIG. 1.—The automatic syringe.

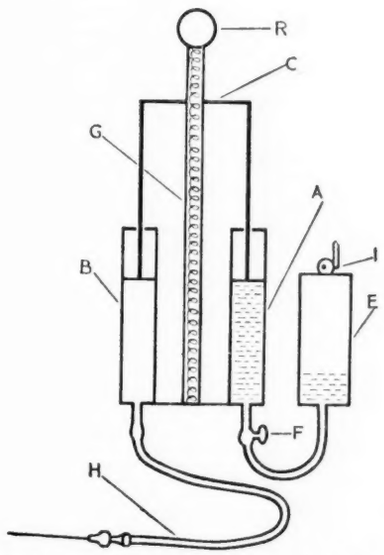


FIG. 2.—The principle of action of the syringe.

the ring R, which stretches the spring G. When the spring has been stretched to the fullest extent it is clipped in position by means of the catch J. The tap F is then closed and the clip J released. Meanwhile the syringe B is filled with the remedy it is desired to inject, is slipped into position in the frame, and the nut D is screwed home. The needle is now introduced, and the rate of injection set by means of the screw tap F.

With this syringe injections of 10 c.cm. may be given over a period of an hour or more. If the injection of smaller amounts of fluid is desired, in order to give a differential action, the syringe B may be made of smaller diameter than the hydrostatic control syringe A, when, for every cubic centimetre of fluid which escapes from the hydrostatic control syringe, only a corresponding small proportion of the drug is injected from the functioning small syringe. The syringe shown in the illustration was manufactured by Ulrich of Ulm.

STATE MEDICINE: ITS PROPER SPHERE

A discussion on "The Proper Sphere of State Medicine" took place in the Section of Epidemiology and State Medicine of the Royal Society of Medicine on February 24, Dr. J. A. H. BRINCKER presiding.

Dr. ALFRED COX began by envying those who had no hesitations on this subject and were sure that the proper sphere of the State was to make medical attendance, like primary education, free to all. But he thought the people would lose by it more than they would gain. In a world becoming machine-made and mechanized it was a good thing to keep the profession free from the shackles of standardization. All would agree that the State had a legitimate and necessary sphere in dealing with the health of the community *en masse*. The profession was rightly proud of the magnificent services it had given to the community through the public health, but the very qualities which distinguished the medical official made him unfitted to deal with the individual. The attitude of a patient who came to his doctor for help was not at all the attitude in which he approached a State or municipal officer. The one specialized in individual, the other in mass, medicine.

Dr. Cox told of a family of keen Socialists whom he attended while in practice up North. They were "whole-hoggers" on the question of a State medical service. During the war he happened to be back in his old town and asked the eldest son, then in the Army and home on leave, how he liked the State medical service now, explaining that the R.A.M.C. was its embodiment. "Well, if you are seriously ill," replied the young fellow, "if you are a hospital case, you couldn't do better; the best service and some of the best doctors. But if you are not seriously ill—if you have a 'belly ache'—you soon find that the doctor isn't your doctor. He is employed by somebody else, and his duty is to them first, and not to you."

Individuality counted for as much in the medical profession and its relations with the public as in any walk of life of which he was aware. Not that this individualistic view excluded the State from giving assistance where necessary. There would in the near future be more and not less State aid. Every Government had to face the problem of providing or helping to provide those necessary things on which contentment depended. Medical attention was one of them, but it was much too expensive to be within the reach of a large section of the people. In the near future, he believed, the bulk of the population would get medical attendance of all kinds through some form of insurance, and obviously this must, for many people, be State-aided. The example of existing national health insurance showed that the proportion of the cost borne by the State, as distinct from the insured person and his employer, need not be great. The universities and the Medical Research Council were proof that a moderate amount of State aid was not incompatible with freedom in essentials. The argument that insurance was cumbersome and that it was much more convenient to put the whole thing on the rates and taxes did not appeal to him; there were higher considerations than administrative convenience.

". . . The answer I give to the question in debate is this: the proper function of the State so far as the actual provision of medical attendance is concerned is to leave it as far as possible to a free profession dealing with a free people; to encourage the profession and people to make voluntary arrangements where practicable, preferably on an insurance basis; to make such arrangements compulsory where the voluntary principle does not work; to aid financially those citizens who cannot provide entirely for themselves; and to keep the 'dead hand' of officialdom as far off as possible."

He had been fortified in this belief by two recent utterances, one the address on "Health and the State" by the Minister of Health,[1] and the other Sir Arthur MacNalty's remarks on the individualism of the practitioner at the Hunterian Society's dinner.[2]

The Unhappy State of Private Practice

Dr. ANDREW TOPPING held that in the interests of the health of the people all medical services should be under the direct control of the State. If it could be shown that existing arrangements were even reasonably satisfactory from all points of view the case for a change of any kind would obviously be weakened. It was necessary to generalize, and he admitted that there were many exceptions to which his comments did not apply. The fact remained that the majority of practising doctors had not held a hospital appointment or done any postgraduate work; many did not read any medical literature. Apart from developing a certain degree of cunning and an ability to recognize a departure from the normal serious enough to justify consultation or hospital treatment, many of them knew less actual medicine ten years after than they did when they qualified. In practice the majority of patients who sought advice were labelled with such names as debility, muscular rheumatism, influenza, and were given a bottle of medicine and left to Mother Nature, who, in the majority of cases, cured them, even in spite of the medicine. It was a distressing thought to him that with all the worth-while work in the prevention of disease and in the recognition of its early manifestations the justification of a doctor's existence should be that, like a well-known cocoa, he was "grateful and comforting"—and it was not necessarily the most efficient doctor who was the most efficient "poultice." The doctor with the most unctuous blarney always scored over the keen diagnostician. At the present day the average practitioner could not afford to be honest with his patients, to say to them frankly, "It is impossible to say definitely what is wrong with you," nor could he tell the hypochondriac or the glutton the truth as to his ills or what he ought to do.

The need for elaborate equipment—*x*-ray, biochemical, and so on—the provision of hospital beds for so many types of illness, all made it increasingly difficult for the doctor to do much more than see a case and advise where it should be treated. The private doctor had lost all venereal diseases treatment; ante-natal work was mostly done in clinics and hospitals; every year he had fewer confinements; he rarely treated a case of infectious fever; most minor surgical complaints were sent to out-patient departments; heart cases were sent for cardiographic examinations; he was not encouraged to treat his own chest cases, for it was obviously better to send them to the tuberculosis dispensary. The general practitioner had laid the bricks of the edifice which now overshadowed him and cut him off from the sunshine. The probability was that the specialist services would extend; they were an advantage to the patient and the community. But the net result was going to be the lowering of the status, the income, and the self-respect of the practitioner; the only solution was that the practitioner should be more and more identified with State medicine.

Was the consultant branch in a healthy condition, asked Dr. Topping, or was there anything rotten in the state of Harley Street? Why was it essential for a first-class doctor to live in that area? The benefits of concentration were far outweighed by the disadvantages to consultants and patients. It was not a convenient area for transport or car parks, and rents were enormously high. The position was due entirely to uninspired lay opinion. The young consultant must be a "yes man"

[1] *British Medical Journal*, February 25, p. 372.
[2] Ibid., February 18, p. 355.

to his hospital chiefs, and "hail fellow well met" with all the students. Unless he was the occasional brilliant exception, he had to be a sycophant both to those above and those below him, and even after his long wait for dead men's shoes his success was problematical. The three desiderata for a successful physician were said to be baldness, horn-rimmed spectacles, and an anxious expression. Here were men, presumably the pick of the profession, living a hand-to-mouth existence for a number of years, with no security, and no guarantee of getting a reasonable reward at the end.

The first step was to give the doctor security of tenure and an annual salary sufficient for him to live according to his proper status—in other words, a State medical service. A very large proportion of the population was already treated on a communal basis, and this system, as well as the municipal hospitals which were increasing in number and efficiency, had proved that State or municipal control was not incompatible with rapid development and absence of petty tyranny. He had no patience with the parrot cry that under State control doctors would do the minimum. The majority of professional people were on fixed incomes, but slackness did not characterize them even though income was not dependent on amount of work done. As for free choice of doctor, which was the principle reiterated by those who opposed a State service, this was much more apparent than real. In present conditions there was often no real choice whatsoever.

Disadvantages of Officialdom

Dr. FRANK GRAY said that it was common ground that the existing arrangements were in many ways unsatisfactory. There was the economic difficulty in the conditions of general practice (for example: "I will call again to-morrow morning." "Oh, doctor, couldn't I let you know whether he is any worse?" and they all knew what that meant). Again there was the gap which separated preventive from curative medicine. The undoubted success which the State had achieved in the past had been chiefly in dealing with the community as a whole and adapting the environment, including the economic environment, to fit the individual rather than adapting the individual to fit the environment. In the case of the sick individual the position was more dubious, and not even Dr. Topping would claim that the State-aided treatment of tuberculous patients had been the chief factor in lowering the tuberculosis mortality. The strongest argument in favour of a salaried service was the medical service of the L.C.C. Every member of the profession must pay tribute to Sir Frederick Menzies and his staff for the vision, courage, and success with which they had tackled a very difficult problem. Unfortunately there were other services besides the L.C.C. in which the same quiet efficiency did not obtain. He found a certain self-contentment in Government Departments, and the same spirit in local authorities was liable to find expression in parochialism and an unwillingness to co-operate with others; also a certain rigidity and inertia. It was a remarkable fact that although national health insurance had been in existence for twenty-five years and the Ministry of Health for twenty, the only postgraduate instruction in preventive medicine for general practitioners had been organized by groups of London doctors, and not by the Ministry. Inertia was, of course, accompanied by lack of imagination and a certain statistical or other uniformity. Mr. Bernard Shaw had said that the world was divided into reasonable people who adapted themselves to the present situation, and unreasonable people who expected the present situation to adapt itself to them, and therefore all progress depended on the unreasonable. But Government officials were "reasonable" people, who avoided stirring up trouble.

Having considered these and other arguments against a State salaried service, Dr. Gray said that he was certain that the best preventive work could not be done on a "fee per attendance" basis, because of the economic difficulties, the unwillingness of the public at present to pay for preventive advice as a separate item, and the unconscious bias of the doctor who stood to gain financially from each separate illness. His answer to the problem was that there should be an extension of health insurance, the service being controlled so far as possible by the medical profession itself. He believed that the income limit would have to be raised to at least £500.

The Basic Issues

Dr. E. R. C. WALKER (Aberdeen) entered upon a philosophical examination of the origin of medicine and medical organization, and drew the conclusion that in a wide sense all medicine, which by definition was the science and art of restoring and maintaining health, was the proper concern of the State. Such a conclusion had the most vital bearing on future policy and development. In his view it was soundly based on inexorable processes that its general recognition sooner or later was inevitable. Just how medical organization would evolve following the recognition of the conclusion was another matter. Much of the opposition to so-called State medicine to-day was aroused not so much by the general idea of State responsibility for medical services as by certain methods proposed in the plans so far adumbrated. Such confusion was to be deplored, because it hampered progress. The proper procedure was first to decide on the basic issues, to determine policy accordingly, and finally to select the plan which seemed to offer the best chance of implementing that policy. He criticized the extension of the national health insurance scheme, which was the central proposal in the B.M.A.'s "General Medical Service for the Nation," as a thoroughly unwise step. The "modified rapture" of the B.M.A. brochure on the subject was the result of a compromise, and those on the B.M.A. Committee who were most enthusiastic about the success of such an extension were not, he thought, themselves insurance practitioners. He favoured an eclectic scheme which would embody payment by salary as well as free choice and professional control.

Mr. SOMERVILLE HASTINGS believed that a State medical service was inevitable. It became inevitable from the time, long ago, that the State began to interfere with private enterprise in relation to health. The State was continually taking in new fields. If tuberculosis, why not rheumatism, which caused nearly as much invalidity? What about heart disease, the greatest single cause of mortality; ought not the State to step in and treat that? The B.M.A. had shown how imperfect was the treatment of fractures; could not a strong case be made out for the State treatment of such conditions? If they were to treat intelligently they must diagnose, and therefore the next step was to provide a diagnostic service in which the general practitioner, who saw the case first, must be included. If the principle were once accepted that the State had anything to do with the prevention of disease one was driven to a complete State medical service. He did not see why a salaried general practitioner in a State service should not have the freedom that he had to-day, with infinitely more possibilities of study and general improvement of his work; nor why there should not be a great deal of free choice. If a certain number of salaried practitioners were allocated to look after a community free choice to some extent might be afforded. Undoubtedly the popular practitioners would soon have full lists, but the less popular and more junior practitioners would receive the numerous people who never bothered to think ahead or choose their practitioner before they got ill. He did not see why all that was good in the general practitioner system to-day should not be taken and grafted on to a State medical service. Dr. Cox had come down on the side of insurance, but he had not said whether he wanted it to be compulsory or voluntary.

If compulsory, what was the difference between that and payment through the rates? If voluntary, the people who needed medical service most would not take the trouble to insure.

The Myth of "Free Choice"

Dr. W. A. DALEY said that in view of the scientific developments of medicine it was almost impossible for a man in single practice, or even in double harness, to use all those refinements in practice which were now demanded. Therefore some such project as central clinics was inevitable. Was not "free choice" a relic from the days when there was a good deal of mysticism about medicine? People had faith in the personality of a certain doctor who was able to get them well more quickly than would otherwise be the case. But nowadays people were coming to have the same sort of faith in institutions and in the officers of institutions that they used to have in individuals. They had confidence in a service, and he saw no reason why they should not grow up to have a confidence in a State or municipal service equal to anything they formerly had in an individual. In fact, there was very little free choice of practitioner to-day. When an insurance practitioner died the majority of his patients transferred automatically to the list of the doctor who bought the practice. As to bureaucracy in a State or municipal service, he could only say that so far as the L.C.C. was concerned the service allowed for a great deal of individual research and initiative; while as for political control this meant only that the Opposition (of whatever party) tried to "ginger up" the people who for the time being had the power.

Dr. CHARLES F. WHITE said that neither the Government nor the municipal authorities took over any service which was being adequately met by private enterprise. But whatever form a State medical service took it remained that the proper place for every case of illness to be seen first of all was in the patient's own home. He was opposed to out-patient and clinic treatment *ab initio*. Any State medical service must provide for a family doctor. But "free choice" was grossly overrated. What did free choice mean to people who had not a telephone or a car? Their choice was limited in any case to the doctors in their village or town, and half a mile made a wonderful difference to free choice in those conditions. In a State medical service it was quite possible that the "high spots" might not be as high as in private general practice, but the "low spots" would not be allowed to be as low.

Dr. R. P. GARROW objected to the phrase "mass medicine" used by Dr. Cox. It was a phrase mostly employed by people who had been to Russia. As for Dr. Cox's illustration, what better compliment could be paid to a service than that by the Army man to the R.A.M.C.—namely, if you were seriously ill you could not do better? What the State needed was a body of doctors who would attend people splendidly when they were ill, but when they were not ill would tell them so. An independent salaried State medical service would get over two chief difficulties: those of the wholesale certification of sickness and the "national medicinal thirst." If the millions of bottles of medicine at present dispensed were not "mass medicine" he did not know what it was.

The openers made brief replies. Dr. COX, while aware of deficiencies in the present system, disliked the idea of a profession entirely on salary, and thought too much security was not good for any man or woman. Dr. TOPPING mentioned the Public Medical Services, which, he thought, would be a step in the right direction if they did not perpetuate some of the worst features in the insurance system. Dr. GRAY sharply criticized Dr. Garrow's suggestion to "tell them they are not ill." How remote that was from the realities of practice! A patient who said he had a pain might have a demonstrable lesion or he might have something less easily demonstrable—a neurotic condition—and far more difficult to treat.

Nova et Vetera

SIR HENRY HOLLAND, 1788-1873

To be intimately acquainted with men of eminence and rank was the crown of Henry Holland's ambition and the grateful employment of his life. Physician to King William IV and later to Queen Victoria, he attended the Prince Consort and Sir Walter Scott on their deathbeds, and Darwin, Huxley, and Herbert Spencer held out to him the hand of friendship. For more than half a century he scrupulously spent two months every year travelling abroad, on the homeward journey making engagements for the very moment of his return. More than once, coming back from America, he started his round of professional visits from Euston Station. That regular prolonged holidays are not a necessary passport to old age is seen in the example of Sir James Paget, who for seventeen years was unable to afford a proper vacation. Yet both men died at the advanced age of 85. Holland was something of a prodigy in that he decided early in his career to limit his practice to £5,000 a year. Appointed in 1814 domestic physician on the Continent to Caroline of Brunswick-Wolfenbüttel, Princess of Wales, at her trial six years later he gave evidence in her favour before the bar of the House of Lords. Slight of figure though vigorous in physique, his face intelligent, his eyes piercing, always neatly dressed, cheerful and animated, Sir Henry was as wise as Solomon, for he was learned in all the troubles and moods of the world. A fluent writer of speculative essays and amusing reminiscences, his best-known works are *Medical Notes and Reflections* (1839), *Chapters on Mental Physiology* (1852), and *Recollections of Past Life* (1872). His father, Peter Holland of Knutsford in Cheshire, is immortalized as Dr. Gibson in Mrs. Gaskell's charming story *Wives and Daughters* (1865). His son, Henry Thurstan Holland, who succeeded him in the baronetcy, became the first Viscount Knutsford in 1895; his eldest grandson, Sydney Holland, succeeded to the peerage, and was chairman of the London Hospital for many years.

W. R. B.

ANNALS OF MEDICAL HISTORY

With its January instalment the *Annals of Medical History*[1] enters on its third series since its birth in 1917, and this number, its hundred and first, happily retains its excellent print and generous illustrations under the editorship, for more than twenty years, of Dr. Francis Packard, to whom students of medical history owe a great debt which some day must be expressed. An account of the medical faculty of Paris from its earliest beginnings to the French revolution is given by Colonel Harold W. Jones, librarian of the Army Medical Library, Washington, who gives much information about its great men, such as Jean Fernel and Gui Patin, and, as a contrast, of charlatans in and outside the profession. The tragic story of Semmelweis's struggle against professional jealousy is sympathetically retold by Dr. Irving Edgar. Convinced that the medical world has paid but scanty attention to the origin of the microscope, Dr. R. L. Haden contributes a welcome essay on this subject. Writing on circumcision Dr. M. S. Jacobs traces its history from the Stone Age. In an extremely interesting tribute to Robert Adams, President on three occasions of the Royal College of Surgeons in Ireland, Dr. J. B. Herrick describes his pioneer account of the syndrome, supplemented nineteen years later, in 1846, by Stokes, of Stokes-Adams and shows how near Adams was to the discovery of coronary thrombosis. Another good article is that on the evolution of physical diagnosis by Dr. H. M. Korns.

[1] *Annals of Medical History*. January, 1939. Edited by Francis R. Packard, M.D. (Pp. 104; illustrated. Subscription for the year 11 dollars; single number 2.50 dollars.) New York: Paul B. Hoeber; London: Harper Brothers. 1938.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY MARCH 4 1939

MEDICAL RESEARCH COUNCIL

Twenty-five years ago the Government decided to further research in medicine by setting up the Medical Research Committee, which became in 1920 the Medical Research Council. And, as the annual report just issued by the Council states, these twenty-five years have seen an enormous access of knowledge of the problems relating to health and disease. This has had its effect not only on the health of the nation but also on medical services and medical personnel. The social conscience of the public has never been so acute as it is to-day, and energetic attempts have been made to bring within the reach of every citizen the newer methods of diagnosis and treatment that have accrued from the growth of knowledge. The development of municipal hospitals as the result of the Local Government Act of 1929 is a striking illustration of the workings of this conscience. The increasing complexity of modern medical technique makes it essential, for the poor patient at least, to enter hospital when it is a question of investigating and treating a major medical disorder. The increase of technical personnel and equipment which has accompanied the increase in medical knowledge has inevitably raised the cost of medical care. In the introduction to the report the question is asked where this development will end, whether a time will come when the expense and trouble of this extension of medical practice will be thought unjustified in view, especially, of its large concern with chronic and degenerative forms of disease. But the characteristic of modern medicine is to attack the cause of disease so that a cure may be found. While faith is still maintained in the *vis medicatrix naturae*, that faith is being more abundantly supported by good works. In therapeutics there has been the rapid evolution of the chemical agents that branch from the original discovery of prontosil. This notable advance in curative treatment may, as the report points out, lessen the incidence of those infectious diseases to which it is applicable. It cites the case of gonorrhoea. The more rapid and effective cure of this by chemotherapy will help to lower the spread of infection and so its incidence. Another way in which chemotherapy may contribute to preventive medicine is in the early treatment of disease of the middle ear. There are said to be at the moment 2,500,000 persons suffering from varying degrees of deafness, and a large proportion of these are deaf because of middle-ear infection. It is now possible to contemplate the prevention of much of this disablement by early chemical treatment of otitis media, and we have in 2-sulphanilyl-aminopyridine (or M & B 693) an agent which appears to be able to damage effectively both the pneumococcus and the streptococcus, organisms which between them share the responsibility of causing otitis media.

Although the search for agents which strike at the cause of disease is of outstanding importance, the fundamental aim of medicine must be to reduce the need for such remedies. Unfortunately, as the report stresses, there is often delay in applying new discoveries to direct preventive ends, and it cites as one of the most striking instances of this the prophylaxis of diphtheria. In 1937 there were 61,339 cases of this disease, causing 2,963 deaths: "This is pure tragedy, in view of the needlessness of such deaths, for since 1929 prophylactic inoculation against diphtheria has proved increasingly successful wherever it has been properly used." Again, the value of proper nutrition can hardly be overestimated. At the Children's Hospital at Toronto a meeting of the staff and students was summoned the other day to examine a case of rickets, so rare and exciting was the event. While there is much less rickets now in this country, there is still a "depressingly slow" adoption by the public of the modern teaching on nutrition. The report considers a greater consumption of milk and other dairy products, of eggs, vegetables, fruit, and fat fish, at the expense of bread, biscuits, sugar, and sweets, to be an urgent national requirement. The indifference of the public to what medical science considers to be good for it will not, however, be overcome by exhortation or the issue of statistics in rather dull-looking publications. Propaganda has been overworked on behalf of most causes, and those not always the most worthy. The public is always being shouted at from the bill hoardings to buy this beverage or that cereal on the grounds that they are "best" or "good for you." And these products are not usually those listed as "best" by advisory committees on nutrition. The public needs to be wooed, and persuaded to do things in its own interest; its co-operation is essential if the resources of modern medicine are to find their widest application. But, as the report says, "It does not seem to be anybody's business in this country to undertake this task."

The task of the Medical Research Council is to promote research, and in the introduction to the report for 1937–8 it gives an interesting account of

its research policy. In the initiation of research the Council works on a long-term plan. It seldom chooses particular diseases for investigation, but wider subjects, and gives as examples virus diseases, endocrinology, and chemotherapy. The Council promotes specific research usually by appointing men to its permanent staff, and, once appointed, the individual is given wide scope for planning investigation. In allocating money for personal and expenses grants the Council provides for individuals, not institutions, because it thinks it essential to retain direct control over the choice of worker and the kind of work to be done. It is, however, disturbed at the "relatively great dearth of work" in clinical science and experimental pathology as compared with other branches of medical science, and is accordingly planning to increase the personnel for this work by offering scholarships and fellowships. In addition to the two units for research in clinical medicine and that for research in neurology, in London, the Council has established during the year a unit for clinical research in surgery at Edinburgh. This has been done in conjunction with the University, the Royal Infirmary, and the Royal Hospital for Sick Children. Beyond these activities the Council has a duty to help Government Departments in dealing with health problems that may arise in the course of their work. The amount of this work has varied from time to time, and in 1919 the demands of the Departments were not great. But of recent years the demands have grown and an increasing amount of the energies of the Council's staffs has been directed to investigations on behalf of Government offices. "It would be idle to suggest," the report states, "that all these investigations have been undertaken with enthusiasm." Among these have been the study of chemotherapeutic action on sleeping sickness, nutritional problems in the Colonies, the toxicity of industrial solvents, the bed-bug infestation of houses. A thorough investigation has been made into a form of chronic pulmonary disease in coal-miners which resembles silicosis clinically but differs from it radiographically. The disease is disabling, and as it is not scheduled as an occupational disease no claim for compensation can be allowed the sick worker. The problem presented to the Medical Research Council by the Home Office and the Mines Department has proved to be one of great difficulty. The investigations began in 1936, and an analysis of the records, started in the early part of last year, determined what further lines of inquiry should be followed. As the report adds, "Research of this kind is necessarily slow, and the public interest in the subject—as evidenced by numerous questions in Parliament and the Press—cannot accelerate its progress." Another matter to which the Council has been asked to turn its expert hand is physical culture, and a Physical Exercise Research Committee has been appointed. In the report the opinion is expressed that health and physique are more closely related to feeding than to physical exercise, and that a young animal fed on a proper diet "is irrepressible and will get exercise under whatever condition it is placed."

The treatment of cancer by radium has received a good deal of publicity lately as the result of the Government's Cancer Bill, and in reviewing the results of radium beam therapy the report considers the new technical methods elaborated to be of even greater importance than the therapeutic results achieved. The Council has accepted the responsibility of further extending research on beam therapy "at least until the end of 1939." Reference is made to a proposed comparative study of the values of beam therapy and of high-voltage *x* rays in the treatment of cancer, and to the need for study of the effects of neutrons and artificially radio-active substances, made available by the cyclotron discovered by Professor Lawrence in California. "There is even the possibility," it is stated, "that both radium and *x* rays will be superseded by the cyclotron in the treatment of cancer by radiations and radio-active substances." A survey is given of recent hormone research, with reference to the synthesis of diethyl-stilboestrol by Professor Dodds and his colleagues and to the work on diabetes and the anterior pituitary by Dr. F. G. Young; and mention is made of the recent revision of the book *Alcohol: Its Action on the Human Organism*. The report draws attention to various popular fallacies about alcohol, and sums up knowledge of its action by saying that this is primarily on the nervous system and is mainly narcotic or sedative.

These and other topics are dealt with in what is a long introduction to matters that are daily changing the health of the people and increasing their security in the face of disease. The high sense of duty and the width of vision shown by the Medical Research Council in carrying out its own work and in guiding that of others hold out great promise for medicine in Britain.

ECONOMY IN HEALTH INSURANCE

A recent publication in the series of studies and reports on social insurance issued by the International Labour Office is entitled *Economical Administration of Health Insurance Benefits*.[1] The subject is important, but the report must

[1] International Labour Office. Studies and Reports Series M (Social Insurance), No. 15. London: P. S. King. (7s.)

become definitely irritating to any experienced insurance practitioner in Great Britain who attempts to read it through, especially if he has been concerned in administration as a member of an insurance committee or a panel or local medical committee, or of the Insurance Acts Committee of the British Medical Association. To such a reader it will appear to consist of the reiteration of a large number of platitudes or statements of the obvious, though he may find most of these so well phrased as to excite his admiration. It has to be remembered, however, that every year there are a large number of young practitioners entering into the insurance service who are without practical guidance, and that the I.L.O. report is of an international character dealing with insurance systems which are by no means the same as that operating in this country. Indeed one may say that though the statements in the report are generalized very effectively, it is largely upon the German system that they are based. It is to be feared that in Great Britain at any rate the report will not be read by those practitioners who are most in need of such guidance as it contains; but a judicious administrator or medical practitioner who has patience will find in it a number of clearly expressed points which he may advantageously pass on to his less experienced or less thoughtful colleagues.

If any system of health or sickness insurance is to be financially successful—and if financially unsuccessful its whole purpose must be endangered—it is clear that both its exact nature and content should be understood by each participant, and that what is called the "principle of economy" should be applied to all its parts. Applying this principle it may well happen that the benefits of the scheme can be made more extensive or the necessary contributions reduced. The report first sets out the nature of the principle of economy and its general relation to social insurance schemes, and then considers its more detailed application to the work of insurance practitioners as concerned with diagnosis, with therapeutics, and with preventive measures. In a most valuable second part the report gives an outline of the insurance medical service in Czecho-Slovakia, France, Germany, Great Britain, Hungary, Poland, and Yugoslavia, with especial reference to the economical administration of medical and pharmaceutical benefits and to the supervision of practitioners and the control of excessive treatment and prescribing.

In this country, as is well known, the two directions in which it has been felt most necessary to stress economy relate to the cost of prescribing and the strictness of certification. In these respects, as well as in others not so important here, the report recognizes and states very fairly the position of the medical practitioner and the difficulties which he encounters. The impossibility, too, of determining definitely the causes of the incidence of sickness claims and of relative drug requirements in areas apparently comparable is also appreciated. Indeed, the only section of the report to which practitioners in Great Britain are likely to find themselves antagonistic, doubtful, or unsympathetic is that which deals with alleged differences in the nature of insured persons from that of the rest of the community, and with some supposed consequential variations required in the principles of treatment applied to them. Surely the application of the principle of economy should be at least equally important in hospital treatment as in insurance practice. So, also, the treatment of the disease, the consideration of the patient's whole personality, and what is called social therapy should always be combined and are not necessary for insured persons only. It does not seem to be true that the English or Scottish insured person "is not usually very complex, and the insurance practitioner therefore will not find it too difficult to recognize and deal with the individual and social psychological factors and motives that make up the somatic physiognomy of the disease," or that he "will often have more difficulty than the practitioner attending private patients in making his patients and other members of the family understand the need for hygienic precautions and in overcoming their superstition in medical matters." As a class insured persons here appear to share human characteristics and imperfections about equally with those who are uninsured; and if it be true that they regard the practitioner of their choice "less as a learned doctor than as an adviser with special knowledge of medical and welfare matters who will stand by them in all the difficulties connected with their illness and who gives this assistance because he feels it is his vocation," it is to be hoped that this is the position with general family practice everywhere.

THE RHEUMATIC NODULE

Rheumatism has been left behind in modern advances in therapeutics, and both for this reason and because of the immense volume of disability produced by it a concerted attack is now being made on its problems. One of the questions in which every investigator must be interested is the relation between rheumatic fever and rheumatoid arthritis. Although typical cases of each appear to be quite distinct diseases, there are exceptions to the rules which distinguish them and features which, even if inconstant, seem to link them. Rheumatic fever is a disease of childhood, rheumatoid arthritis of adult life; in one the heart is involved, in the other usually not; but everyone has seen cases

in which these clear distinctions do not apply. The geographical distribution and seasonal incidence of the two diseases are said to be similar, and in both there is serological evidence of haemolytic streptococcal infection, abundantly clear in rheumatic fever, but also apparently significant when it has been sought after in rheumatoid arthritis. Perhaps the most interesting and crucial of the possible links between the two conditions is the subcutaneous nodule. The rheumatic nodule is the hall-mark of rheumatic fever. Nodules may also occur in rheumatoid arthritis. Are they of the same nature? This is by no means an easy question to answer, for neither exhaustive clinical study nor numerous histological examinations have yet brought to light any absolute criteria of distinction or identity. Some of this evidence is reviewed in a recent paper by C. O. Hawthorne,[1] who is content to state the case without apparently favouring either conclusion. A more extensive review by H. Keil,[2] concluding with a bibliography of 324 items, will be found an abundant source of information on this subject, dealing not only with the two varieties of nodule already mentioned in all their pathological and clinical bearings but with a large number of other types of skin nodule with which these may be confounded or compared. Keil is rather strongly inclined to the view that the nodule of rheumatic fever is a distinct entity, and that the term "rheumatic nodule" should be confined to it. The nodule of rheumatoid arthritis differs from it not so much in structure, which nevertheless requires further study, as in its clinical features, and is considered to bear a closer resemblance to the juxta-articular node seen in syphilis. Of possible methods of histological study, supravital staining most deserves further application.

QUININE AND MALARIA IN INDIA

A concise account of this important problem is given in a pamphlet by Mr. C. F. Strickland.[3] The author has taken his facts chiefly from a memorandum prepared by the Public Health Commission in 1937 and from the Proceedings of the Conference on Rural Hygiene held in 1937 by the Health Organization of the League of Nations at Bandoeng (Java). The outstanding facts are that malaria is the chief cause of ill-health in India, and that while preventive anti-mosquito measures provide the only radical cure, yet an adequate supply of cinchona alkaloids is the only palliative immediately available. The Indian annual consumption of quinine is 90 tons, while the actual need is probably at least 500 tons. The Indian production of quinine is only 36 tons and is certainly less than one-tenth of the annual requirement. The supply of quinine is organized by the Kina Bureau, which controls about 97 per cent. of the world's consumption. This organization, formed in 1913, has followed the policy of maintaining the price of quinine stable at a level which yields a reasonable profit to the producer. From an economic point of view it has been brilliantly successful and might indeed serve as a model for marketing boards, since it has held the quinine price steady throughout a series of crises which have smashed the prices of all other primary products. Unfortunately this sound economic policy has not suited the health of India, since the malaria-stricken populations in that country are in urgent need of the cheapest effective anti-malaria remedy that can be produced. The provincial Governments of India which produce quinine have, however, followed the general policy of the Kina Bureau and have treated quinine production simply as an economic problem. They appear to have been content so long as the plantations showed an annual profit of a few lakhs of rupees and have not considered the question whether the population was getting enough quinine. The pamphlet suggests that the quinine supply should be organized by the Indian Government, which should concentrate on the problem of how to supply the population with an adequate quantity of remedies for malaria at a price which it can afford. The suggestion is made that totaquine or cinchona febrifuge should be distributed free while quinine should be sold at cost price. The production of cinchona alkaloids is necessarily expensive, and Mr. Strickland does not suggest the possibility of making any very drastic cuts in the cost of production. Distribution of quinine at less than an economic rate would call for measures to prevent smuggling, and careful control of the distributors would be needed.

CREATIVE ACTIVITY

Men of all shades of thought have long realized that their desire to make things was based upon their experience. It is not only the self-assertive conqueror who can claim "I came, I saw, I conquered," for the humblest worker who creates something achieves the same purpose. The balance of the impression of our senses in their creative endeavour is a matter of interest; much more so is the effect of our personal reaction. Professor Viktor Löwenfeld of Vienna, in his book on *The Nature of Creative Activity*,[1] states that he is an artist, a father, and a teacher of blind and partially blind children. These experiences led him to watch with a critical eye the creative endeavours of normal- and bad-sighted or blind children in drawing and modelling. He comes to the conclusion that the senses are not the sole controlling factor; but that there is something in the inherent make-up of the individual brought out in the work of his hands. In his book there are reproductions of some eighty of the specimens of the work of these children. In these drawings there can be seen, he states, the psychological constitution of the child. "In the schema of an anxious child of delicate sensibilities I could trace this anxiety in the round, unclosed, uncertain lines just as much as I could find the characteristic resoluteness of another child in its rectangular representation of the body. Both schemas seem to me characteristic of the child's total personal structure." The cripple child drew a man

[1] *Brit. J. Rheum.*, 1938, **1**, 109.
[2] *Medicine*, 1938, **17**, 261.
[3] *Quinine and Malaria in India*. By C. F. Strickland, C.I.E. London: Oxford University Press. (6d.)

[1] London: Kegan Paul, Trench, Trubner and Co. (21s.)

with one side twisted even as his own body was twisted. A child drew a man endeavouring to lift a heavy load with exaggerated long arms; and in a picture of the load uplifted the arms were drawn short and thick and deeply shaded. A man thinking hard is drawn with a massive head held in his hands, but such an unimportant detail as the mouth is omitted; the whole thought was concentrated on the upper part of the head. Strong exaggeration of size is held to indicate the theme of the drawing. Again, a child blind from birth modelled a cherry: first he formed the stone, which he covered with a thin skin and finally with a fleshy coat; to him the conception of the cherry was bound up with the interior. Professor Löwenfeld holds that the reactions of the sightless children indicate that a large part of the work of normal-sighted children is also not represented by visual experience. "We must conclude, therefore, that because weak-sighted children are more intensely bound up with experiences of self and, above all, because they lack visual impressions, it is in their drawings that the essential formal characteristics of the art of all children as such are to be seen in their purest form." Again, "The further optical experience recedes into the background the less important does the eye become as the intermediary of the concept. To the same extent the importance of the environment diminishes and experience is more and more confined to the processes that go on in the body as a whole."

INDUSTRIAL WELFARE

The Industrial Welfare Society, which was a "war baby," has marked its twentieth year by a review of its achievements in the form of the annual report, 1938. The work began as the Welfare Department at the Ministry of Munitions, though earlier efforts in the same direction had been made by individual firms. After the war the society was formed to carry on, along voluntary lines, the work begun in the munition factories. At first it was concerned only with provision of canteens, treatment of injuries, and the like, but now it comprehends a large round of activities, many of which are illustrated in the report. During the last three years the society has been active in the movement for the treatment of fractures in organized clinics by modern methods. Mention is made of recent work in Hull, where a meeting of local employers arranged by the society was addressed by an orthopaedic surgeon, and in the result a properly organized clinic is being set up. The society is taking steps to start similar movements in other big industrial centres, as well as to attract attention to the enormous number of minor injuries sustained in industry which often do not receive the care they deserve because they do not appear to be serious. There is the kindred question of the re-education of those crippled by accidents. In the London area this work is being done by the Leatherhead Cripples Training College, with which the society is in touch. The society has also been encouraging a study of the causes of the increasing incidence of industrial neuroses; conferences have been arranged on this subject, also a short intensive course in industrial physiology and medical industrial psychology in association with the London School of Hygiene and Tropical Medicine. Other matters dealt with by the society include the collection of statistics and other records. It is doing excellent work on a small income.

VACCINE LYMPH FROM EGGS

Since the abandonment of the arm-to-arm method vaccination against small-pox has been practised almost exclusively with a suspension of material obtained from vaccinial vesicles in calves. It is impracticable to collect this material free from skin bacteria, and although the addition of 50 per cent. glycerin is an admirable method of destroying these bacteria, complete sterility is difficult to ensure, and some diminution in the potency of the virus also occurs. The difficulty in balancing these effects and the expense of using calves are two important drawbacks to this method. It is of course impossible to cultivate the vaccinia virus by ordinary *in vitro* methods, but, like many other viruses, it will multiply freely in the developing egg; indeed the hen's egg in the complex field of virus work is coming to be the equivalent of the agar slope in ordinary bacteriology. Since material obtained from eggs can be entirely free from bacteria, and since eggs even in the relative numbers needed are very much cheaper than calves, this method has evident advantages for the production of vaccine "lymph." Its possibilities have been fully explored during the past few years at the Government Lymph Establishment, and an account of this work by W. D. H. Stevenson and G. G. Butler[1] has now been published. When the chorio-allantoic membrane of a chick embryo of about twelve days' incubation is inoculated with vaccinia virus, and the egg is opened four days later, the membrane is found studded with opaque plaques, which contain the virus in high concentration. These are excised, and after grinding in the frozen state and the application of tests for sterility may be diluted to form the "lymph"; this term is still used, although its original meaning must seem to have been entirely lost in this connexion. The potency of this material, as indicated by titration in rabbits, may exceed that of calf lymph during some twenty-five serial transfers from egg to egg, but tends then to diminish; the total number of serial transfers in this study was over 100. The lesions produced in animals are somewhat less severe and slower in development than those following inoculation with calf lymph, but subsequent immunity, as judged by negative results from revaccination after periods up to two years or more, is satisfactory. No evidence could be obtained that cultivation in the chick embryo increases the neurotropic affinities of the virus, as has been alleged by others. So far as laboratory investigation can decide the method therefore seems to

[1] Ministry of Health Reports on Public Health and Medical Subjects: No. 87, *Studies on the Cultivation of Vaccinia on the Chorio-allantoic Membrane of Chick Embryos*. 1939, H.M. Stationery Office. (4s. net.)

be a good one, but extensive trials in human beings, in circumstances which will yield evidence of the degree of immunity produced, are evidently desirable before this method of preparation is generally adopted. Perhaps the views of the abolitionist will be heard on this procedure; an egg as the source of material for inoculation may quite conceivably offend his susceptibilities less than an animal.

SACCULAR ANEURYSMS IN THE CAVERNOUS SINUS

It is curious that while saccular aneurysms rarely involve the cervical part of the internal carotid artery they are not uncommon in its intracranial course, where they may be met with in women from 30 years of age onwards, although they are rare in men. The pathology is obscure, as these aneurysms are not associated with syphilis, and head injury is apparently more likely to give rise to the arteriovenous or fistulous variety than to the saccular type. The S-shaped bends which the internal carotid artery makes as soon as it enters the skull have been thought to act as a protection for the smaller cerebral vessels against sudden alterations in cardiac output, but, as Geoffrey Jefferson[1] has suggested, they may be a source of weakness, and so responsible for these lesions. Whatever the cause, these aneurysms produce clearly recognizable syndromes dependent upon the anatomical relationships of their position within the cavernous sinus. The further forward they are in the sinus the less the involvement of the divisions of the trigeminal nerve, so that although the first division is affected in all cases the maxillary or mandibular divisions may escape in the anterior lesions, but not when the aneurysm lies towards the back of the sinus. Ocular palsies vary according to the extent of the implication of the third, fourth, and sixth nerves. The symptoms are pain, often of sudden onset, referred to the orbit and to a varying extent to the face, and within a few hours ophthalmoplegia; the degree of trigeminal anaesthesia may determine whether the lesion is towards the anterior or the posterior end of the sinus. The cavernous aneurysms may be designated "subclinoid" to distinguish them from those which lie above the level of the clinoid processes and which, while causing oculomotor palsy by pressure upon the upper aspect of the sinus and pain in the ophthalmic division of the fifth nerve, do not cause trigeminal anaesthesia, as do the subclinoid or true cavernous varieties. Meningeal tumours in the middle fossa may give rise to a syndrome similar to that of subclinoid aneurysm, but they tend to involve the optic nerve and cause blindness before interfering much with the nerves to the extrinsic muscles of the eye; the subclinoid aneurysms only very rarely involve the optic nerve and cause blindness. *X*-ray examination is sometimes of great diagnostic value by showing a calcified wall in the aneurysm, enlargement of the sphenoidal fissure, or erosion of the lower and outer wall of the optic foramen. Angiography by thorotrast introduced into the common or internal carotid may be most helpful. Although it is tempting to reduce the blood flow in the internal carotid by ligaturing either it or its parent and main collateral vessels, the surgeon will do well to recall what Matas[2] has written: "The possible occurrence of cerebral disturbances has invested a simple technical procedure with a gravity associated with but few operations." Hemiplegia and death have followed carotid ligation for aneurysm, and although preliminary digital compression and the application of test ligatures under local anaesthesia without any untoward result may suggest that success has been achieved, late paralysis may still occur. The patient may, however, recover from this late paralysis, in which case it has probably been the result of venous thrombosis and local oedema through slowing of the circulation. Carotid ligature is by no means indicated in all cases. Jefferson advises leaving the aged arteriosclerotic patient alone, and points out that the special indication for ligature is evidence, usually in the form of unremitting pain, that the aneurysm is not thrombosed but actively increasing in size. Patients with subclinoid aneurysm may go through months of acute distress with the lesion unrecognized; hence the importance of being on the lookout for it. Diagnosis should be followed by appropriate ligation unless there are contraindications.

[1] *Brit. J. Surg.*, 1938, **26**, 267.

[2] *Keen's Surgery*. Philadelphia: W. B. Saunders Co., 1911, **5**, 321.

Our Medico-Legal columns this week contain a long report of the action heard in the Dublin High Court which ended in a verdict and judgment in favour of the Wellcome Foundation, Ltd., who had been sued for negligence in respect of diphtheria prophylactic manufactured at their laboratories and alleged by the plaintiffs to have contained living tubercle bacilli. The case is of much general interest, and the scientific and clinical evidence, summarized in our report, should be read by all members of the profession.

During the Royal Tour of Newcastle-on-Tyne and the North-East of England the King and Queen went to the Medical School of King's College, Newcastle, where they were received by the chancellor of the University of Durham, Lord Londonderry. The King declared the building open, and the vice-chancellor and others associated with the university were presented to him. After the launching of the battleship *King George V* the King and Queen visited the Wallsend Infirmary maternity block.

Lieutenant-Colonel E. F. W. Mackenzie, R.A.M.C., has been appointed Director of Water Examination to the Metropolitan Water Board, in succession to the late Lieutenant-Colonel C. H. H. Harold.

We regret to announce the deaths of Dr. F. G. Clemow, C.M.G., an authority on international hygiene, and of Sir Hugh Beevor, Bt., M.D., consulting physician to King's College Hospital, London.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

HAEMORRHOIDS

BY

C. NAUNTON MORGAN, M.B., F.R.C.S.

(*Concluded from p. 401*)

Injection and Operative Treatment

Though the injection method, first introduced by Blackwood in 1866, has an important place in the treatment of haemorrhoids, it has definite limitations. Selection of suitable cases is important, since the results may otherwise be disappointing and dangerous complications occur. Injection treatment is most suitable for small uncomplicated haemorrhoids when the main symptom is bleeding (first degree). Sometimes severe haemorrhage is encountered, which would appear to indicate immediate operative treatment; a well-placed injection, however, will control the bleeding at once. Haemorrhoids which prolapse on defaecation or on proctoscopic examination (second degree) may be injected, since chemical inflammation from high submucous injection above the haemorrhoid will fix the mucosa and contraction of fibrous tissue will draw up the pile into the rectum. It is impossible in cases of prolapse to promise the patient that the condition will be cured by injection; the larger and more easily prolapsed the haemorrhoid the poorer the response. When haemorrhoids are of the third degree, or of the intero-external variety, injection is not only useless but inadvisable. Very occasionally, when only one haemorrhoid remains permanently prolapsed, especially if operation is contraindicated, high injection above the haemorrhoid may be tried, but the patient should be kept recumbent and under observation for a few days after injection, as the haemorrhoid may swell and become strangulated and infected.

It is dangerous to inject haemorrhoids which are thrombosed, infected, or ulcerated. Associated infection such as an abscess, fistula, or a chronic fissure or proctitis is also a contraindication to injection.

Technique of Injection

The instruments necessary are a 10 c.cm. Record syringe with a long needle which has a collar $\frac{5}{8}$ inch from its point, and which is attached to the syringe by a locking device (this is necessary owing to the viscosity of the solution injected); a two-inch proctoscope; a good light; a pair of long plain dissecting forceps; and an artery forceps. The angular needle illustrated (Fig. 4) has a simple locking mechanism and enables a clear view to be obtained whilst injecting. An illuminated proctoscope is also useful (Fig. 5). For those not conversant with this treatment the knee–elbow position is the easiest, since when the proctoscope is inserted the ampulla of the rectum is distended with air and the landmarks are more obvious. When experience has been obtained the left lateral position, with a small pillow under the left buttock, is much more comfortable for both patient and operator.

There are two methods of injection, both of which have their place: (*a*) the submucous injection of 5 per cent. phenol in almond oil, with the addition of 2 grains of menthol to the ounce; (*b*) the injection of 20 per cent. phenol in glycerin and water, equal parts, into the centre of the pile itself.

THE SUBMUCOUS METHOD

The proctoscope is slowly and gently inserted into the rectum, its obturator removed, and the instrument slowly withdrawn until the upper limit of the ano-rectal ring is seen. The correct site for the first submucous injection is just above this ring, into the highest portion of the internal haemorrhoidal plexus (Figs. 2 and 2a). The haemorrhoids themselves are not seen when the proctoscope is in this position (compare Figs. 3 and 3a). The injection is as a rule made at points corresponding with the position of the primary haemorrhoids, but because

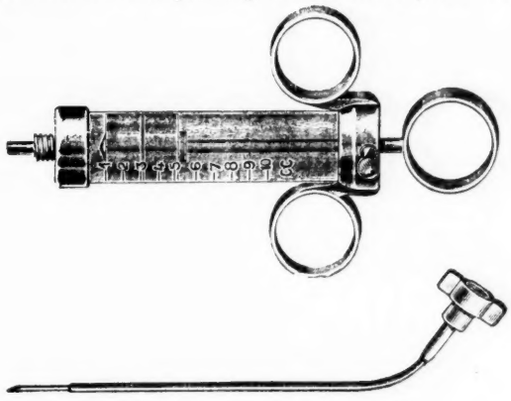


FIG. 4.—Syringe and angular needle.

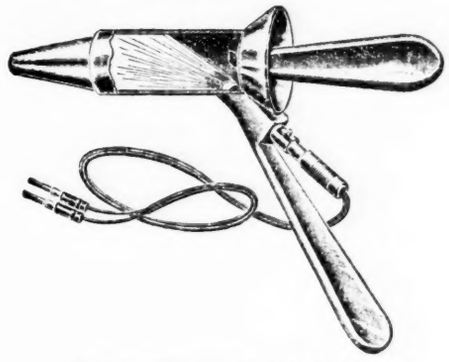


FIG. 5.—Illuminated proctoscope.

the solution spreads readily in the submucous space around the whole circumference this is not absolutely necessary. The needle is inserted through the mucous membrane into the submucous layer and its point felt and seen to move freely in this layer before injection is carried out. The solution is injected slowly and the mucous membrane will be seen to be lifted up, and as injection is continued a swelling appears, on the surface of which tiny capillaries are visible running on a background tinged slightly yellow by the almond oil. Should a dead-white area begin to appear during injection the solution is being placed too superficially, and ulceration will result if injection is not immediately stopped. When the previously described swelling is seen the needle is slowly withdrawn, some of the solution being injected along the needle track during withdrawal. Bleeding from the needle puncture, should it occur, usually ceases on removal of the proctoscope, but should it not do so, or if it is profuse, application of an artery forceps for a minute will control the bleeding. The amount of solution injected depends upon the laxity of the mucous membrane. Generally 2 to

4 c.cm. is necessary at each point of injection, but sometimes a large haemorrhoid will require 6 to 8 c.cm.

One injection only is given at the first visit, as rarely a general reaction may occur due to sensitivity to the almond oil, since it does not arise after injection of the stronger solution, which contains glycerin and water. At subsequent visits two or three injections at different sites are given. The second injection is made about ten days later. If a good reaction from the first injection has been produced, the mucous membrane will feel tough and leathery both to the palpating finger and to the needle. Injection above the two other haemorrhoids is now carried out, and if there is no reaction at the place of the first injection another injection is given at the same site. Subsequent submucous injections are always made through *soft mobile* mucous membrane at intervals of ten to fourteen days. When a good reaction has been obtained at the site of the highest injection an additional submucous injection is given at a slightly lower level. Usually three or four are required for each haemorrhoid.

Injection into the Haemorrhoid.—Sometimes, although there is a good response to submucous injections, the lower portion of the haemorrhoid still remains prominent. In these circumstances a final injection of 20 per cent. phenol in glycerin and water—equal parts—is given deeply into the centre of the pile mass itself. This solution should never be used for submucous injection. Five to seven minims only are injected, using a Graeme-Anderson syringe and needle.

Injection treatment is ambulatory, and as it is given through insensitive mucous membrane it is as a rule painless. If the solution is injected quickly, discomfort or a sensation of distension may be experienced. A few hours after injection a fullness in the rectum may be felt. Acute pain on injection indicates that the injection has been given too low and into the wrong layer. Violent exercise should be avoided for at least twenty-four hours following injection. The response to injections is variable, and it is impossible to be sure of the length of time their effect will last. A large proportion of cures may be expected with haemorrhoids of the first degree, and bleeding can always be stopped, but when haemorrhoids prolapse recurrence of symptoms occurs after two years or longer, depending on the amount of the prolapse.

Operative Treatment

Internal haemorrhoids which remain continually prolapsed or which prolapse easily after replacement should be treated by operation. If injection fails to control the prolapse, and if it recurs on walking or straining or at work, non-operative methods are usually futile. It has been stated that haemorrhoids frequently recur after operation. This is true, but the reason for these recurrences is that in the majority of instances the internal haemorrhoids had only been partially removed. Pre-operative treatment consists in giving an aperient two nights before the operation, a soap-and-water enema the evening before, and a saline wash-out three hours before. General anaesthesia, using a basal narcotic with cyclopropane or gas-and-oxygen, may be employed, but the most satisfactory method is a low spinal anaesthesia, since the prevention of post-operative vomiting and coughing minimizes the pain and there is no oedema of the perianal skin. Local anaesthesia, using 1 per cent. procaine, supplemented by pentothal intravenously, is especially suitable when other methods are contraindicated.

The patient is placed in the lithotomy position and the perianal skin and anus are cleansed with spirit. The left forefinger is inserted into the rectum and gently hooked around the ano-rectal ring. The skin behind the anus is painted with iodine and 10 c.cm. of warm proctocaine (an oily solution containing anaesthetic substances having a prolonged action) is injected through a needle puncture in the midline one inch behind the anus (Figs. 6 and 7).

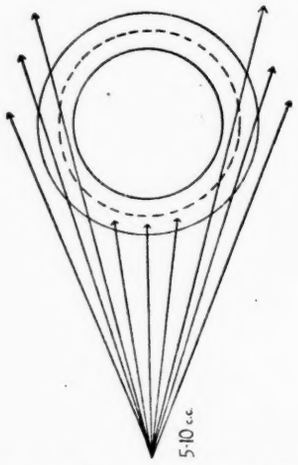


FIG. 6.—Method of injection of anaesthetic solution.

The injection is given into the external sphincter and deeply under the skin around the anus in a fan-like manner; strict asepsis must be observed during the injection. The inserted forefinger, which acts as a guide to the position of the needle, is not removed until the injection has been completed. The perianal tissues are then gently massaged to ensure even distribution of the oily solution. Oil-soluble anaesthetics, if properly injected, considerably lessen post-operative spasm and pain. *The injection should not be given at the end of the operation.*

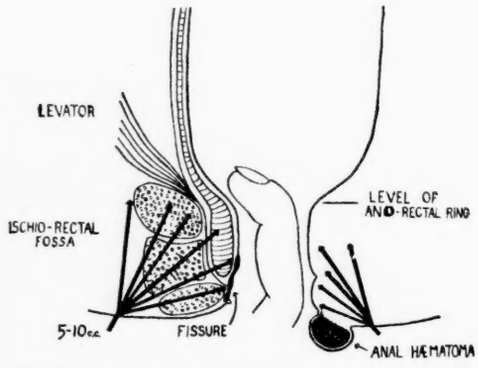


FIG. 7.—Showing depth of injection; also the method of infiltration for removal of an anal haematoma.

It is unnecessary to dilate the anus. A tag of skin at the anal margin is pulled outwards from the anus with dissecting forceps. This will deliver the corresponding internal haemorrhoid through the anal orifice. Sometimes, of course, the internal haemorrhoids are already protruding. The internal haemorrhoid is grasped by artery forceps, which is handed to an assistant, who retracts the haemorrhoid radially from the anus. The two remaining haemorrhoids are delivered in a similar manner and held by an assistant. When the three primary haemorrhoids are thus retracted, three longitudinal folds will be seen passing upwards into the rectum from the haemorrhoids. These folds are the pedicles of the haemorrhoids, and must be included in the ligatures to ensure radical excision. Each of these folds is seized with artery forceps, and the

three previously applied artery forceps are removed. When the forceps on the pile pedicles are retracted radially, folds of *pink* rectal mucous membrane will be seen passing between each pedicle, forming a triangle. Until this "triangle of exposure" is visible the haemorrhoids are not properly exposed (Fig. 8).

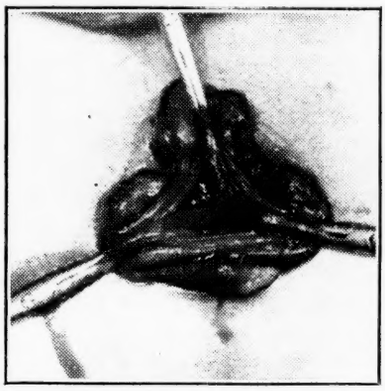


FIG. 8.—Showing the three primary internal haemorrhoids fully exposed. Note triangle of exposure.

The whole area is now cleansed with ether soap and with dettol, 1 drachm to the pint. Starting with the left lateral haemorrhoid, the tip of the left index finger is placed at the level of the subcutaneous external sphincter and gentle outward pressure exerted. The forceps holding the pedicle of the haemorrhoid is then placed in the palm of the same hand. The skin covering the corresponding portion of the external haemorrhoidal plexus is grasped in another artery forceps, which is also placed in the palm of the left hand and gently pulled inwards. A V-shaped cut is now made with a pair of scissors through the skin of the anus, each limb of the V being on either side of the forceps retracting the skin (Fig. 9). This

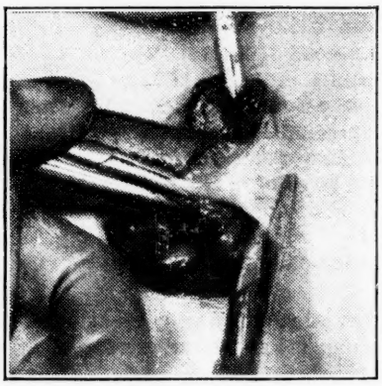


FIG. 9.—Showing the skin cut

portion of skin, together with the underlying external haemorrhoidal plexus, is dissected cleanly off the subcutaneous external sphincter, which is thus laid bare. This wedge of tissue is further dissected inwards until the inner border of the subcutaneous external sphincter is exposed. At the inner border of this muscle the longitudinal muscle fibres of the anal canal will be seen passing downwards into the tissues now freed by the dissection.

The dissection is now complete, and the internal haemorrhoid, together with the corresponding external plexus, is held only by the pedicle of the internal haemorrhoid and the longitudinal muscle. Traction is exerted by an assistant on both the pedicle and the skin forceps, and the pile pedicle transfixed with No. 2 chromic catgut on a round-bodied needle and ligatured above the forceps holding the pedicle of the pile (Fig. 10). The other two primary haemorrhoids are dissected and ligatured in a similar manner. For the right posterior haemorrhoid the artery forceps are held in the palm of the left hand. A strip of anal skin and mucous membrane should always be left between each haemorrhoid. Secondary haemorrhoids, when present, are either included with the ligatures of the primary piles or, if associated with a skin tag, are

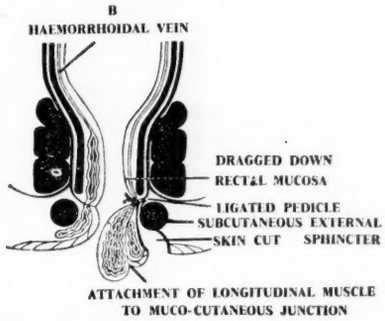


FIG. 10.—Showing position of skin cut and ligation of haemorrhoid pedicle. (C. J. C. Siggers.)

dissected in a manner similar to that used in dealing with the primary haemorrhoids. The ligature, however, is placed no higher than the level of the triangle of exposure, as these piles have no pedicles.

The haemorrhoids are now removed, the ligatures cut short, and the pedicles returned into the anal canal. It will be found that the ligatured haemorrhoids will not retract far inside the anal canal, so that large raw areas will not be left below them. Redundant skin is removed from the edges of the three wounds at the anal orifice, leaving them flat and somewhat triangular. Three squares of gauze soaked in crude cod-liver oil are now inserted into the anal canal and laid flat on the radiating wounds, and a good pad of dressings applied and held in place by a firm tight T-bandage.

The external dressings are changed daily and gauze moistened with eusol is reapplied. Liquid paraffin and a normal diet are given from the second day onwards, and on the evening of this day an aperient is administered. On the third morning, when the patient has a desire for defaecation, the bowels are moved with an olive oil and gruel enema. After the bowels have acted the patient is placed in a hot bath, and on return to bed the external wounds are gently irrigated. The inserted dressings are, as a rule, extruded during defaecation. Hereafter, moist antiseptic dressings are applied twice daily following baths.

It is important to pass a finger into the anal canal on the ninth, eleventh, and twelfth days after operation to anticipate any constriction. The patient leaves the hospital on the twelfth day, but should be seen at the end of a week, and again in a fortnight, for the passage of a finger, since though constriction does not follow a properly performed operation, it is wise to anticipate its formation. For further details of the operation the reader is referred to an article by Milligan *et al.* (1937).

Correct diagnosis, gentleness, and attention to detail in pre-operative, operative, and post-operative technique are essential for successful results in the treatment of haemorrhoids.

Our thanks are due to Messrs. Vann Bros., London, for the loan of blocks of instruments illustrated in this article.

REFERENCE

Milligan, E. T. C., Morgan, C. Naunton, Jones, L. E., and Officer, R. (1937). *Lancet*, **2**, 1119.

MEDICAL RESEARCH COUNCIL

ANNUAL REPORT*

The annual report of the Medical Research Council runs to 90,000 words, which is the length of a substantial novel, but it must be borne in mind that the field of investigation it summarizes is conterminous with clinical and experimental medicine. It is not an easy report to compass, because the records of the work carried out in any particular subject, such as hormones, for example, will be found scattered in half a dozen different places in this large volume. This follows from the policy of the Council, which promotes research not only at its own central institute but by means of an external staff at a number of clinical research units and laboratories, and through research grants to workers in universities, medical schools, hospitals, and other institutions throughout the country. It describes its method as that of "sending fleets out in several directions and in different seas, hoping that individuals will seize any special prize of discovery that shows itself in any quarter."

The Council's plan is to promote specific research, in the first place, by the appointment of individuals to its own permanent staff. The choice of the individuals depends on the subject which seems to require special attention, and, of course, on the merits of the person chosen. When once appointed the individual is given wide liberty of action in planning investigations. But in the other large part of its work, whereby it assists grantees, the Council leaves the initiative in choice of subject and method of investigation with the head of the laboratory or hospital in which the particular worker is employed, or with the worker himself. It does not provide money for institutions but for individuals, because it regards it as essential to retain direct control over the choice of worker and the type of investigation proposed.

New Investigations

This policy is reflected in the form of the report. We have, first of all, an introductory survey, in which, among other matters, the extending investigations which the Council undertakes for Government Departments are described. To the twenty or more investigation committees of the Council one other has been added during the year with a view to assisting the Government's policy of encouragement of physical exercise and recreation. This committee on physical training, with Sir Henry Dale as its chairman, will have as its main task to advise the Council on matters relating to the planning and initiation of investigations regarding physical exercise in its relation to health. Another new investigation committee, under the chairmanship of Professor G. E. Gask, has been formed to direct the promising work on radium beam therapy research, which the Council has accepted the responsibility of continuing, at any rate until the end of the present year. The Council will have the support of the other bodies which for the last four years have been interested in this subject—namely, the Department of Scientific and Industrial Research, the Royal Society, the Royal Colleges, the National Radium Commission, and the Radium Institute. Reference is made to the fine co-operative spirit shown by the different medical and scientific bodies which have aided the investigation, the curative potentialities of the work, and the value of the new technical methods elaborated on the physical and clinical sides.

* Report of the Medical Research Council for the Year 1937–8. Cmd. 5939. H.M. Stationery Office. (3s. 6d.)

The National Institute

Following the introductory survey comes a detailed report of the work done during the year at the National Institute for Medical Research at Hampstead and Mill Hill (the work of the Institute is to be entirely concentrated at Mill Hill within the next year or two). Here a staff of forty are engaged, together with a number of visiting workers from abroad. Some idea of the work which proceeds in the two main departments—those of physiology, pharmacology, and biochemistry, and of experimental pathology and bacteriology—may be inferred from the fact that 120 contributions to medical literature have been made from the Institute during the year, most of them in the form of papers to specialist periodicals, but half a dozen of more general interest to the columns of this journal.

One special piece of work at the Institute, continuing throughout the year, has been a detailed study of the strains of influenza virus obtained during the 1936–7 epidemic in this and other countries. The results show that certain strains of the virus can be clearly distinguished from one another by their antigenic properties. The specific strains fall into four main antigenic types, which by themselves would provide an analogy to the types of pneumococci. There are, however, other strains which do not show such a sharp type-specificity, but appear to react with the immune sera evoked by all strains of the human influenza virus. There are still other strains of intermediate type, among which are included all the American strains. Thus it is obvious that the preparation of an effective vaccine for the production of immunity in advance against an expected epidemic of influenza is not as simple a problem as might have been hoped, but the results of certain comparisons of the immunizing potency for mice and ferrets of the different preparations of vaccines are being published, and the next step will be the trial on a human community of the protective effect of a vaccine prepared by the most promising methods in conferring immunity to any strains of virus which may be encountered, including such as are not specifically represented in the vaccine. Still less success has attended the work on the infective agent of measles, which is known to be of the filterable virus type. Attempts to transmit it to other than the human species have only rarely and irregularly been successful, and the virus has also resisted attempts to cultivate it artificially on growing tissues.

The determination of biological standards and the methods of biological assay and measurement, carried out at the National Institute, at the Standards Laboratory, Oxford, and at the Lister Institute, where there is an expanding national collection of type cultures of micro-organisms, is the subject of a separate chapter in the report.

Clinical Research Units

The report goes on to record the work of the external scientific staff. Some of these workers are engaged at the clinical research units, which are maintained partly by the Medical Research Council and partly by the institutions within which they are placed—namely, University College Hospital, Guy's Hospital, and the National Hospital for Diseases of the Nervous System, in London, and, the latest unit to be established, the surgical unit at the Royal Infirmary, Edinburgh. At University College Hospital Sir Thomas Lewis has been working on the study of somatic pain, and Dr. J. H. Kellgren has been determining the

regions to which pain is referred from given muscles. Both these pieces of work were published in the *British Medical Journal* of February 12, 1938. Other members of the external staff have been engaged on specific investigations at some fourteen laboratories and institutes in different parts of the country.

Passing mention only can be made of the continuing work at Queen Charlotte's on puerperal infections, under the direction of Dr. Leonard Colebrook; an investigation at the Galton Laboratory, University College, by Miss Julia Bell into the genetics of hereditary ataxia and spastic paraplegia; the study of mental defect by Dr. L. S. Penrose at the Royal Eastern Counties Institution, Colchester; experiments on the biological effects of radiation, under the direction of Dr. F. G. Spear at the Strangeways Research Laboratory, Cambridge; the work on bacterial chemistry carried out at the Bland-Sutton and Courtauld Institutes at Middlesex Hospital and the Institute of Biochemistry, Cambridge; research into the natural occurrence and mode of action of vitamin C, carried out at the Lister Institute, and principally on the vitamin B complex at the Dunn Nutritional Laboratory, Cambridge; and the studies of vital statistics, especially a statistical study of Bright's disease, under the direction of Professor M. Greenwood, at the London School of Hygiene and Tropical Medicine, to which statistical inquiries were transferred from the Institute ten years ago.

Nutritional Surveys in the Tropics

Even more varied and numerous are the accounts, which follow next in the report, of research work aided by grants. They are grouped under the headings of clinical medicine, surgery, obstetrics, gynaecology, paediatrics, neurology, and pathology. Nutrition and dental disease also come largely into the picture. We shall have occasion later to refer to some of this work. From these many "cells" of activity about 350 papers have been contributed to medical literature during the year.

In recent years the Council has included research in tropical medicine within its province. This was done after consultation with the Colonial Office. Research in this field is promoted by the award of junior fellowships for the training of suitable men and senior fellowships for sending qualified workers abroad to investigate in the Tropics the problems requiring special methods of study. Since the scheme was started eight junior and three senior fellowships have been awarded. Fully trained investigators have been sent to Gambia, Uganda, and Tanganyika to study the action of chemotherapeutic drugs on sleeping sickness, and other problems. A new opportunity for assisting the Colonial Office has arisen during the past year in the shape of plans for field surveys on the subject of nutrition in the Colonial Empire. A beginning has been made by sending an officer to Nyasaland, where he has already been able to confirm the curative properties of nicotinic acid in pellagra among the maize-eating population as well as to study other deficiency diseases.

The work of the Industrial Health Research Board, which is an appanage of the Council, has its own section of the report. During the year it has been tackling among other problems those of industrial pulmonary disease, the toxicity of industrial solvents, and industrial physiology and psychology. Another task with which the Council is entrusted is the award, in Great Britain, of the medical travelling fellowships of the Rockefeller Foundation of New York. These fellowships, endowed by the Foundation, are intended for British graduates who have had some training in research work, in clinical medicine and surgery, or in some other branch of medical science, and are likely to profit from a period of work in the United States or elsewhere abroad before taking up positions for higher teaching or research in the United Kingdom. During the academic year 1938–9 fellowships have been awarded through the Council to six fellows, five of whom are now working in the United States and one in Paris. In addition the Rockefeller Foundation has itself awarded fellowships, on the Council's recommendation, to three members of the staff of Maudsley Hospital.

Chemotherapy

Having thus indicated the scope of the report, it remains to indicate a few of the leading lines of research which have been pursued—some of them at more than one centre—during the year. For the last year or two chemotherapy has been at the head of the queue. At the National Institute investigations have been pursued on the synthesis of compounds with a curative action on experimental trypanosomiasis. A diamidine compound has been found to have a striking effect in clearing parasites from the blood of a rhesus monkey infected with a monkey malaria, but although it showed such promising results in laboratory experiments the margin between the curative and toxic doses was too narrow for therapeutic use. It is hoped to find among the complex amidine compounds some equally curative but less toxic substance. The number of conceivable variations of such structures is almost indefinitely large, and it is expected that the research facilities of scientifically organized industry will be used for a full exploration of the possibilities of this work, so as to afford the maximum chance of the early discovery of a substance of this general type with the optimal development of the promising therapeutic properties already revealed.

At Cambridge some work has been assisted in which various new synthetic products are being tested against avian malaria. The most promising is the compound known as "R. 63." At St. Bartholomew's Hospital Medical College investigations are taking place on the fate of "Bayer 205" (or "antrypol") in the body, with particular reference to its use as a prophylactic against African sleeping sickness. It has been found that the retention of significant amounts of the drug in the body for several months after injection is due not to storage in any particular organ but to a combination of the drug with plasma and tissue proteins.

Some account is also given of the continuing work of the special unit for experimental research on malaria at the London School of Hygiene and Tropical Medicine. Many hypotheses have been put forward to explain the action of quinine and other anti-malarial drugs. The balance of evidence is in favour of direct action by such substances, but the difficulty is to explain how such pronounced effects can be brought about at the low concentrations at which the drugs must presumably act in the body. It has been thought that the explanation might lie in the property possessed by quinine of inhibiting enzyme action, and experiments have been undertaken to ascertain how far this may be tenable. The inhibitive action of the drugs on the respiratory metabolism of trypanosomes and malarial parasites has been studied, and has shown, among other things, that quinine can exert a measurable inhibitive effect in dilutions as low as 1 in 50,000 and atebrin at 1 in 500,000. Many suggestive lines of further inquiry have been opened up by this work.

(To be concluded)

HISTORY OF GALL-BLADDER SURGERY

PROFESSOR GREY TURNER'S LECTURE

The first of three Lettsomian Lectures was delivered before the Medical Society of London on February 20 by Professor G. GREY TURNER, Director of the Surgical Unit at the British Postgraduate Hospital and Medical School. Professor Turner's general subject was "The Surgery of the Gall-bladder and Bile Ducts," and in this first lecture he devoted himself to a historical review.

Early Ideas and Procedures

It was only in comparatively recent times, said the lecturer, that the correlation of gall-stones and the symptoms now associated with them was made out, but by the time of Matthew Baillie's *Morbid Anatomy* (1793) there were some good descriptions. On the Continent Jean-Louis Petit in 1733 mooted the project of attacking the diseased gall-gladder surgically. Petit stated that gall-bladders had been known to become adherent to the abdominal wall, and he conceived the idea that if such cases could be recognized one might await such adhesion and then safely make an incision and remove the stones. In England Samuel Sharp (1700–78), surgeon to Guy's Hospital, took note of Petit's work.

The operative treatment of gall-stones really began with the pioneer work of Ephraim McDowell (1780–1830), who, in 1809, was the first surgeon to open the abdomen with the object of removing an ovarian cyst. His work on ovariotomy really laid the foundation for gall-stone operations. The American father of cholecystotomy was John S. Bobbs of Indianapolis (1809–70), who in 1867 explored an abdominal tumour which turned out to be a distended gall-bladder. It was opened, the stones removed, and closed, and the patient made a good recovery. The operation was carried out in a room taken for the purpose above a chemist's shop in his Southern town, and it is recorded that he was assisted by seven other doctors and one medical student. He opened the abdomen expecting to find some sort of tumour which would have a pedicle with which he could deal, but instead found a swelling from which he evacuated a large quantity of pus and removed two structures which he said looked like rifle-bullets but subsequently proved to be gall-stones. Indiana at that time, of course, was rather at the "back of beyond," which accounted for the fact that not much was heard of the operation in this country. The year was that in which Lister published his first paper on antiseptic surgery.

Immediate developments associated with the surgery of gall-stones might have been expected to follow upon the work of Lister, but there was a time lag until 1878, when Professor Kocher of Berne carried out a two-stage operation with success, using the antiseptic technique. W. W. Keen in Philadelphia followed in the same year, but, unfortunately, his patient died. Another great American surgeon of the period was Marion Sims (1813–83), whose name was associated with many developments in connexion with the abdominal surgery of women, especially for vesico-vaginal fistula, but he did not limit himself to gynaecological work, and in Paris in 1878 he operated deliberately for gall-stones, giving the procedure the name of "cholecystotomy." The patient was extremely ill with jaundice, and lived only eight days after the operation.

Lawson Tait

The lecturer next came to the great name of Lawson Tait, who, coming to Birmingham in 1870, soon made his position felt. He was associated there with the Hospital for Women, and for a good many years made some most remarkable surgical achievements; 1879 was his *annus mirabilis*, for in that year he did his first operation for the removal of pyosalpinx, for hydrosalpinx, introduced his special operation for rupture of the perineum, and in the same year deliberately operated for gall-stones. He let out some limpid fluid, enlarged the opening, and removed the stones; there were two stones, one loose and one in the duct. Tait was not long before he brought the results of this surgical adventure before the Medical and Chirurgical Society in London. Tait was, unfortunately, unpopular with a large section of the profession, and coming to London to give an account of his procedure, he knew, as he said, that he was coming into the lion's den, but his purpose was to stimulate discussion. He continued to work at Birmingham, and between 1879 and 1884 he operated on fourteen similar cases, with only one death. Up to this day the scoop commonly used in this operation was the gall-stone scoop of Lawson Tait, although it had been renamed many times. Professor Grey Turner said that he had it from one of Tait's assistants that he was not a man to lie down under opposition, and he did what he could to get his revenge on his colleagues. On one occasion in the early days a well-known lady who was suffering from gall-stones sought the opinions of many physicians in London, Edinburgh, and Birmingham, but finally decided to submit to operation in Birmingham by Lawson Tait. At that time those who attended the operating theatre did not wear sterile gowns, and on this occasion a number of physicians attended, all of them in immaculate frock coats and holding their high hats in their hands. They crowded round, hoping, such was the unpopularity of Tait, to see him discomfited. Tait, aware of the hostility, opened the abdomen and without the slightest delay took that spoon of his and scooped out stones and gall-bladder mud, with which he bespattered the onlookers so that they beat a hasty retreat.

Professor Turner said that in 1906 in Philadelphia he had the privilege of seeing Joseph Price (1853–1911), one of Lawson Tait's disciples, carry out some operations in the Tait style (presumably not with the exaggerated gesture just mentioned); everything was conducted with the utmost simplicity and the minimum of instruments.

The First Cholecystectomy

It was left for other people to carry the surgery of the gall-bladder and ducts to the next stage. Johann August Langenbuch (1846–1901) was the first surgeon, in 1882, to propose that the gall-bladder might on occasion be excised. It was rather remarkable that it should be as late as 1882 before that operation was proposed on the human subject, because in 1760 or thereabouts there were records of a good many experimental operations on dogs in which the gall-bladder was deliberately removed. Unfortunately the patient did not recover after Langenbuch's first cholecystectomy. In 1884 the same surgeon proposed that for stones in the common bile duct the duct might be exposed, deliberately opened, and the stones removed, but he did not himself have the first success. It was Kümmell of Hamburg who actually performed the operation.

In 1895 (said the lecturer), when he himself started clinical work at the Royal Infirmary, Newcastle-on-Tyne, it was surprising to find the general attitude of the profession towards operations on gall-stones. Some would not dream of making a diagnosis of gall-stones unless the patient was jaundiced, and there was the greatest reluctance in advising the operation. An excellent surgeon of the older sort at about that time was Frederick Page, who operated on a good many gall-stone cases and tried to carry out the traditions of Lawson Tait, though like many other surgeons of the period he was rather impressed by size and number and oblivious of the fact that the one gall-stone left behind was the one which was causing the patient's symptoms.

Rutherford Morison, so recently lost to us, came to Newcastle in 1888, a man of wide outlook and excellent

training. In a notable paper, published in the *British Medical Journal* in 1894, he described what was now called "Morison's pouch." In many ways he made innovations, but his great contribution to the surgery of gall-stones was his cult of thoroughness. He made a good exposure, saw exactly what he was doing, and was extremely careful and punctilious in all details. Another great pioneer in the surgery of the gall-bladder was Arthur Mayo Robson, who wrote a book on the subject in 1892. Perhaps he was a little too enthusiastic about his successes and a little too forgetful of his failures, but he was an excellent surgeon. Another name which ought to be mentioned in connexion with the surgery of gall-stones was Greig Smith of Bristol, who died in 1897 at the early age of 43.

In 1904 at the Annual Meeting at Oxford of the British Medical Association he would never forget a communication on gall-stones by John B. Deaver of Philadelphia. The technique of operation had been established by that time, but diagnosis was still difficult and uncertain. In a delightful book on gall-stones by John Bland-Sutton, published in 1905, he mentioned that the mortality in certain London and provincial hospitals following gall-stone operations at that time was 16.9 per cent. At about the same time the Mayos, in a paper analysing 1,500 operations, recorded only sixty-six deaths (4.4 per cent.). In 1906 the lecturer had paid his first visit to the Mayo Clinic. He found no special technique being pursued at that time; it was the excellence of the diagnosis, treatment, and general arrangements which enabled such good results to be attained. The familiarity that came as a result of dealing with large numbers of cases was also a factor. In passing the name of Murphy must be mentioned; he did pioneer work on the anastomosis of the gall-bladder to the duodenum.

Later Pioneers

He well remembered the striking address which Bland-Sutton gave to the British Medical Association meeting at Exeter in 1907 on cholecystectomy, a method which, although it had been introduced twenty-five years earlier, had not until then become established. In the same year Moynihan wrote one of his remarkable papers dealing with the inaugural symptoms of gall-stones, a paper which deserved to be re-read from time to time. Not long afterwards one began to be interested in the possibility of *x*-ray study of gall-stones. J. T. Case of Battle Creek Sanatorium, during visits to this country, did much to further that method. Among other technical introductions the lecturer mentioned the method of electrocoagulation by Professor Pribram.

A great many surgeons had been pioneers in the field of gall-stone surgery. He had mentioned those with whose work he had been personally familiar, but there were many others. One of the great contributions of surgery to gall-stone disease was that the physicians had been taken into the operating theatre to see biopsies. He believed it was Mayo Robson who invented the term "biopsy" in connexion with the discoveries made in the operating theatre of pathological processes. Another thing which surgery had done was to put an instrument of precision into the hands of those who were doing clinical work in the investigation of the biliary apparatus.

What could surgery do at present for the patient suffering from biliary disease? In the presence of gall-stones which were causing symptoms everybody would agree that the best chance for the future of the patient was to have the gall-stones removed by operation. He was not persuaded that the time would not come when some other method would be evolved for dealing with the question effectually, but at present the only effective method was operation. He thought it a pity that the younger generation of surgeons should feel it a duty so frequently to excise the gall-bladder. It would be wise to remember that in very many cases of acute infection of the biliary tract it might be more desirable to drain the gall-bladder and remove it on some other occasion as a secondary operation. Unfortunately serious injury to the common bile duct was still a not very infrequent accident. He agreed that, generally speaking, removal of the gall-bladder was followed by better results than drainage, but every true surgeon should have his sense of restraint properly developed and know when to be content with drainage.

HOSPITALS IN TIME OF WAR

EMERGENCY ARRANGEMENTS

The Minister of Health issued on Monday to all hospital authorities and voluntary hospitals a memorandum[1] explaining the main lines on which a comprehensive scheme for a war-time hospital organization is being worked out for England and Wales. (A separate memorandum for Scotland will appear shortly.) In the course of the next few weeks the Ministry will have sent to every hospital included in the Emergency Hospital Scheme a communication explaining precisely what part the hospital is to play in the event of an emergency, but the memorandum shows the whole scheme in perspective.

It is explained that, unlike other measures for protection against air raids, for which schemes are initiated by local authorities, the hospital arrangements are organized directly by the Minister of Health through the medium of hospital officers stationed in various parts of the country, who would exercise general control over the operation of the scheme in an emergency. The Minister is assisted in this work by a number of consultant specialists appointed in accordance with the advice of the Presidents of the Royal Colleges of Physicians and Surgeons.

Classification of All Hospitals

The basis of the emergency scheme is the division of hospitals into different classes according to the use which it is intended that they should serve. Almost all hospitals are being included in the emergency scheme in some way. Only a few which for medical reasons are considered unsuitable are being excluded.

Room is to be made for the reception of casualties in one wing or block of most of the mental hospitals in the country, and a few selected mental hospitals are to be completely cleared of their ordinary patients, who are to be transferred to other mental institutions, in order to provide some major units for the reception of casualties transferred from the largest towns.

Linking-up of Hospitals

It is proposed to link up casualty hospitals to each other in the more vulnerable areas and to selected hospitals further out. The casualty hospitals would include, for instance, the leading London hospitals. The reason for doing this is partly in order that arrangements can be made in advance of an emergency for spreading to the best advantage the skilled personnel and therapeutic equipment, which in peace-time are mainly concentrated in a comparatively small number of hospitals, and partly that the evacuation of patients from the danger areas to the hospitals outside may, so far as possible, be prearranged. It is realized that some of the institutions which are in effect to act as base hospitals outside the largest towns are not at present equipped or staffed for undertaking casualty work, and while the Ministry are making arrangements to improve the existing equipment in a number of these hospitals it will be necessary to disperse some of the more valuable equipment at present concentrated in the towns, and also to dispose the medical and nursing personnel to the best advantage. Particulars of how the arrangements will work in London and other areas will be published shortly.

[1] Emergency Medical Services Memorandum No. 2 (England and Wales). H.M. Stationery Office, price 6d.

Increasing the Hospital Accommodation

There are at present 371,500 hospital beds in England and Wales (not including 130,000 in mental hospitals), and as these beds are generally fully occupied with the ordinary civilian sick they have to be substantially increased in the event of an emergency. At the outset of an emergency the Ministry would request all hospitals to send home all patients for whom institutional treatment is not essential, with the exception of those whose homes are in areas being evacuated, and, it is estimated, this should free from 30 per cent. to 50 per cent. of the existing hospital beds. In addition, some patients still in need of hospital treatment would be transferred from general hospitals in the danger areas to hospitals in the outer areas with the object both of making additional beds available for potential casualties and of enabling the hospital staffs to be dispersed.

At the same time, additional beds are to be introduced into selected hospitals and institutions. It is understood that arrangements for distributing approximately 80,000 beds are already in hand and that, if it was essential, accommodation could be found for a great many more beds within the existing hospital system by putting beds closer together in wards, or by setting up others in ancillary buildings within hospital precincts. The effect is to provide a total of about 300,000 beds for casualties, of which 200,000 would be available in the first twenty-four hours. The Minister appreciates, however, that this may not be sufficient, since it is impossible to foretell the scale to which damage may be inflicted, and also provision must be made for the normal peace-time demands on hospital accommodation. Accordingly, the Government is exploring the possibilities of using additional buildings for the expansion of hospitals in the danger areas, and of erecting huts on land adjacent to hospitals or elsewhere.

Medical Personnel

It is proposed that under the affiliation schemes the medical staff of groups of affiliated hospitals should be divided up into surgical teams and teams assigned to the appropriate hospitals. There are also to be mobile surgical teams available to deal with exceptional pressure wherever it might come. Where additional medical personnel is required beyond the assistance which can be given by affiliated hospitals, requests for help will be made to the Ministry; and the Central Emergency Committee of the British Medical Association, who have already established a register of all medical men and women who would be available in an emergency, will advise on the allocation of medical personnel as they are required. It is intended in advance of an emergency to allot individual doctors to particular hospitals or groups of hospitals.

Nursing staff are to be organized in the same way. A register of trained nurses and assistant nurses is being established by the Central Emergency Committee for the Nursing Profession, Romney House, Marsham Street, London, S.W.1, who are also arranging to augment the trained personnel by the recruitment and training of women as nursing auxiliaries.

H. Beeuwkes (*Nederl. Tijdschr. Geneesk.*, 1939, **83**, 149) states that the reaction of Paul and Bunnell, known in Germany as the reaction of Hanganutziu and Deicher, has recently been the subject of study by numerous investigators. In view of the high agglutination titre for sheep corpuscles of sera from patients with malaria, Beeuwkes made a control examination of sera from ten patients not suffering from glandular fever. He concludes that a titre of at least 1:512 must be obtained for the reaction to be of value in the diagnosis of glandular fever.

Reports of Societies

ABORTUS FEVER

At a meeting of the Liverpool Medical Institution on February 16, with the president, Dr. WILLIAM JOHNSON, in the chair, Dr. LESLIE CUNNINGHAM read a paper on abortus fever.

Dr. Cunningham's observations were based on a review of nineteen consecutive cases seen during the last five years. The main symptoms appeared to be pyrexia, which might or might not be undulant in type, rigors, sweats, pains in the back, and fatigue. As a rule there was no marked prostration. The rural districts in the neighbourhood of Merseyside, with their relatively sparse population, seemed to have a greater number of cases than would have been expected from a comparison with the number of cases coming from Liverpool and Birkenhead. The incidence was greater during the winter months. The pyrexia commonly persisted for eight weeks. The spleen was palpable in half the cases, and some 75 per cent. of cases showed a relative lymphocytosis. The agglutination titre accepted as conclusively diagnostic was 1 in 80, but 20 per cent. of cases failed to show agglutinins.

The frequency of positive sera in investigations at the Birkenhead General Hospital was then discussed, and Dr. Cunningham mentioned the coagglutination of *Br. melitensis* and the occasional occurrence of a characteristic zone agglutination. In the differential diagnosis tuberculosis, typhoid fever, and pyelitis might confuse the issue. The most satisfactory method of treatment was undoubtedly by the administration of sulphonamides; T.A.B. vaccine was a poor second, and sodium nucleinate was practically of no value.

Main Clinical Varieties

Professor HENRY COHEN, in the discussion which followed, recalled that in a paper to the Association of Physicians in 1930 he had suggested that five main clinical varieties occurred: (1) the classical undulant form; (2) the arthritic; (3) the abdominal; (4) the genital, of which orchitis was the essential feature; and (5) the "catarrhal jaundice" type. Since 1930 he had been impressed with other features, especially the occasional occurrence of severe haematemesis or melaena as an initial or early symptom; the occasional late development of agglutinins against *Br. abortus*; and the absence of positive agglutination tests against *Br. abortus* and *Br. melitensis* in cases of pyrexia running a classical undulant course when all other causes could be excluded and when the patient made a complete recovery. He thought the absence of agglutination in these cases might be due to a related infection, the specific antigen not being used in the agglutination test, but even if this were so he would have expected coagglutination to have produced some effect. The result of any form of treatment in a self-limited disease was difficult to assess; the administration of both fouadin and prontosil had been followed in several of his cases by a subsidence of temperature and an absence of relapse.

Dr. J. MURRAY BLIGH urged that the title "brucellosis" should be applied to the disease rather than the terms "undulant" or "abortus" fever. The fever was truly undulant in a comparatively small number of cases; it was not undulant particularly in the arthritic form, which resembled the rheumatic disease of childhood, nor in the meningeal form. Dr. W. A. MACKAY said that he had seen three cases of brucellosis, one with such marked neurological symptoms that lumbar puncture was performed. In one the agglutination titre for *Br. melitensis* was higher than that for *Br. abortus*. The use of salol had been suggested by a friend, and had seemed helpful.

From the small number of cases no conclusion could be drawn, but in view of the admitted inadequacy of treatment at present advocated it was worth a trial, but in full doses—say, 10 grains every four hours. Dr. D. J. GAIR JOHNSTON described four undoubted and two probable cases of abortus fever which he had encountered since 1931. Dr. M. H. PAPPWORTH suggested two reasons why brucellosis infections were possibly being missed. First, little attention had been paid in this country to porcine brucellosis. No case of brucellosis of porcine origin had been reported in this country, although over a hundred such cases had been noted in the U.S.A. Secondly, clinicians usually regarded brucellosis infections as protracted fevers, but cases had been described of proved brucellosis infection in which the total pyrexial period was only ten days or less. In these cases the patients would have apparently recovered before the occurrence of demonstrable agglutinins in the blood. The only way to diagnose such cases was by blood culture, a method not in common use in this country for this group of infections. Might not some cases of obscure pyrexia lasting up to ten or twelve days and followed by complete recovery be examples of brucellosis? He found it difficult to accept the view that the infection was usually spread by milk because of the age incidence and the occurrence of cases of porcine origin. Might not infection from meat be more important?

At the same meeting Professor R. E. KELLY read a paper on recurrent peptic ulceration, which was illustrated by a coloured film of the operation for jejunal ulceration and gastro-colic fistula.

This also provoked an interesting discussion, in which Mr. H. C. W. NUTTALL, Mr. A. KIRK WILSON, Mr. PHILIP HAWE, Mr. COSBIE ROSS, and Professor HENRY COHEN took part.

Local News

ENGLAND AND WALES

The Burden Neurological Clinic

The need for more research into the causes of mental defects and abnormalities, and borderline conditions, is so widely recognized that there will be general satisfaction at the establishment of a neurological research centre at Stoke Park, near Bristol. Mrs. R. G. Burden, the administrator of the Stoke Park Colony, who has already provided a centre for the investigation of these problems on genetical lines, has now, with the consent of her co-trustees, decided to establish a centre for clinical research, which will be formally inaugurated in the spring of this year. The new centre, to be known as the Burden Neurological Clinic, will be housed within the grounds of Stoke Park, but fenced off from the colony and provided with a separate entrance. In addition to the unusually wide range of cases available for study at Stoke Park itself, it is hoped to secure the co-operation of the other mental deficiency institutions, as well as of the mental hospitals, in the district. It is to be noted that the beds in the new research unit will be under the sole control of the medical director. Sir Laurence Brock (Chairman of the Board of Control) has, at the invitation of the founder and with the consent of the Minister of Health, agreed to join the committee and to be its chairman, and Dr. F. L. Golla, professor of the pathology of mental diseases in the University of London, has consented to act as director. Other members of the committee will be Dr. Charles Visger, Dr. H. H. Carleton of Bristol University, Professor E. D. Adrian, F.R.S., of Cambridge, and Dr. G. W. T. H. Fleming. Simultaneously with the opening of this new neurological clinic the buildings and laboratories of the Burden Mental Research Trust are also being considerably enlarged and will be ready for occupation in about three months. The two together will give Stoke Park great importance among mental institutions. Further, the committee of administration of the Trust has accepted an invitation to be represented at the triennial meeting of the American Associations for Psychiatry and Mental Deficiency by the chairman and the principal investigator (Professor R. J. A. Berry and Dr. Fraser Roberts). The invitation has been accepted in order to place before the American medical public some account of the work of the Trust during the five years of its existence. Mrs. Burden has also now made possible the continuance of the Trust on a permanent basis.

The research clinic at Stoke Park includes a large biochemical laboratory, an electrophysiological laboratory, and an endocrinological laboratory with animal house. In addition, there are four small research laboratories, with the usual other facilities—workshop, photographic rooms, etc. There are two wards accommodating ten beds each. The staff, under the direction of Professor Golla, includes Mr. W. Grey Walter (electrophysiology) and Mr. N. S. L. MacLeod and Mr. A. Tingey (biochemistry). Dr. Max Reiss, who holds a research grant, will be responsible for the endocrinological work. The programme of work contemplated includes researches on cortical excitability, and the electro-encephalography and cortical potential of cases of epilepsy and cerebral tumour. It is proposed if possible to utilize these diagnostic methods in operative treatment of such cases, for which the institute possesses admirable surgical facilities. Research will also be undertaken into nervous metabolism and endocrinology of schizophrenia and allied conditions. The clinic includes an admirable operating theatre and sterilizing room, and the question of affording facilities for the development of neurosurgery in Bristol is under consideration.

Need for a Safe Milk Supply

The Minister of Health, Dr. Walter Elliot, and the Parliamentary Secretary to the Ministry of Agriculture, the Earl of Feversham, on February 24 received a large and influential deputation from the People's League of Health. The deputation, which included Miss Olga Nethersole, founder of the League, was introduced by Dr. C. O. Hawthorne. In welcoming the deputation the Minister announced that he had received apologies for unavoidable absence from Viscount Dawson of Penn and Lord Horder, regretting their inability to accompany the deputation, as they had arranged to do. Lord Dawson wrote that he had always supported the principle that all milk intended for human consumption should either be pasteurized or come from certified tuberculin-tested cattle. Lord Horder wrote that his sympathies were entirely with his colleagues of the People's League of Health. Sir Henry Gauvain said that he considered it incredible that milk, the nation's most precious food, might be supplied without restrictions as to its safety. No other food was thus exempt, and in the interests of both the community and the farmers we should set our house in order and ensure the safety of all who consumed it. Sir Walter Langdon-Brown said that the economic difficulties in the way of safe milk legislation might be considerable, but they would not be overcome by raising false issues. It was misleading to allege that the medical profession was divided on this subject. Why should the views of an inconspicuous minority against pasteurization be so frequently quoted against the weight of opinion of the profession as a whole? Sir John Ledingham said that elaborate investigations had shown that pasteurization in no way materially affected the nutritional value of milk. Dr. Veitch Clark, Dr. A. S. M. Macgregor, and Dr. Maule Horne, medical officers of health respectively for Manchester, Glasgow, and Poole, supported the views put forward and said that their local authorities were prepared to take advantage of permissive powers to control the milk sold in their areas other than milk coming from

tubercle-free herds or milk treated by pasteurization or other officially recognized heat methods. Major Brennan De Vine, President of the National Medical Veterinary Association, said that the percentage of milk samples in large towns showed from 6 to 13 per cent. infected to some degree with tubercle bacilli. The deputation urged the value of milk as a food and the importance of legislation to ensure that consumers might rely on the cleanliness and purity of the milk supply. The People's League of Health had continuously urged that safety—meaning by this freedom from risk of tuberculosis and other communicable diseases—was, not less than cleanliness and purity, an essential quality of the milk supply if unnecessary deaths, illness, and disability were to be avoided.

In reply to the deputation the Minister said that not only he but the Government as a whole were convinced that the objective that the League put forward —that of a safe and pure supply of milk—was right and just. They would not, of course, expect him to anticipate the scope of any new legislation on the subject of milk, but it seemed to him to be clear that there was a need for further education of public and Parliamentary opinion. He had been considering what part the Government could play in this, and he had asked one of the more prominent of the younger medical men in this country to undertake the collation and review of the existing evidence on the whole subject of pasteurization and the safety of milk supplies. When this task had been completed he proposed to publish the result.

The New St. George's Hospital, London

When a schism among the governors of the Westminster Hospital in 1733 resulted in the foundation of St. George's Hospital, Lanesborough House facing the park at Hyde Park Corner was selected for its domicile. The next (still existing) building, completed in 1834, was reorientated altogether with the main entrance facing the Green Park and Constitution Hill. Now that rebuilding is once more to be undertaken the architects of the successful plan, Messrs. W. H. Watkins and Partners, have reverted to the Lanesborough idea of a main façade looking northward over Hyde Park. They have adopted neither the X form of building, well exemplified in London by University College Hospital, nor the H plan of several other hospitals (and incidentally of one of the designs "placed" by the assessors of the competition): the site is, of course, far too restricted for anything in the nature of separate or linked pavilions. Indeed the limitations thus imposed must have been a severe handicap on all the architects: the successful design overcomes them with great ingenuity, while maintaining a dignity and poise worthy both of London and of a great hospital. The approach is by a road leading southwards from Knightsbridge under a large archway tunnelling the centre of the whole mass. On the left (east) side of this road is the access to the administrative centres, on the right (west) side to the casualty departments, which are sited facing Grosvenor Crescent Mews. The board room, which in the Lanesborough days was at the back of the house looking southwards over the garden, and in the existing hospital is lighted from the interior courtyard, will be placed where the front entrance is now, occupying the height of two floors. On the lower ground floor in the north-west corner are the medical school common rooms, luncheon rooms, etc.; in the south-west angle are the out-patient departments, with the dispensary just north of them, almost in the centre of the pile. The lower basement houses machinery and power sources of various sorts; the basement itself is devoted to stores, treatment rooms, gymnasium, post-mortem department, a squash court, and the sisters' and nurses' dining and changing rooms (at the south-east corner). On the ground floor itself the north-west portion houses the medical school's lecture theatres and library; at the south end of this floor are the surgical clinics. The wards, eight to the floor, are planned for surgical cases on the third floor, orthopaedic and psychiatric on the fourth, medical on the fifth, obstetric on the sixth, and pay wards on the seventh; the operating theatres and isolation wards are on the eighth floor. The architect's plans provide accommodation for 500 in-patients. The central approach road leads near its southern extremity into an underground garage; with the exception of an access for stores at the western extremity of the Knightsbridge frontage this central arch is the only entrance. The framework of the new building will be of steel faced with Portland stone; the cost is estimated at £700,000; and if it is built in one piece it is thought that eighteen months would suffice for completion of it—this is mainly, it may be supposed, a question of finance. The inclusion of a complete medical school, administrative and residential quarters, and a fully equipped clinical hospital in one and the same building will make the new St. George's unique among institutions for the healing of the sick.

Society of Apothecaries Dinner

A livery dinner of the Society of Apothecaries of London was given in the hall of the Society on February 21. After the loyal toasts had been honoured the Master, Dr. Reginald Hayes, proposed "The Royal College of Physicians of London and the Royal College of Surgeons of England." He traced the association of the Society of Apothecaries with the two Royal Colleges from the seventeenth century, and pointed out that the Society had worked in co-operation with the Royal College of Surgeons before it was "Royal" and, indeed, before it was a "College." With the toast he coupled the name of Mr. Hugh Lett, P.R.C.S., who himself had been Master of the Apothecaries only last year. Mr. Hugh Lett, in replying, recalled the "Battle of the Dispensaries" and the incidents which led up to it, and said that the Society of Apothecaries was the only licensing body in existence that was a city company and the only city company that was a "society." The Senior Warden, Mr. L. Vernon Cargill, proposed the toast of "The Guests," and welcomed particularly the Master of the Barbers Company, which still retained many of the treasures of the old Barber-Surgeons' Company, and particularly Holbein's painting of Henry VIII presenting the Act of incorporation to the barbers and surgeons. He paid tribute to the Royal College of Obstetricians and Gynaecologists, saying that though the College was only founded in 1929 it had already some 800 fellows, members, and diplomates. It had, too, played an important part in connexion with the Midwives Act of 1936. Professor W. Fletcher Shaw, President of the Royal College of Obstetricians and Gynaecologists, in replying for the guests gave a dream-like prospect of the future of the new Royal College and hoped that it would build up traditions as honourable as those of the senior Colleges. Mr. J. L. P. Denny, Master of the Barbers Company, congratulated the Society of Apothecaries on being the only guild practising in the full sense but still retaining its connexion with the city. The Royal College of Surgeons, he said, was merely "a lineal descendant of a Siamese twin tacked on to the Barbers Company by Henry VIII."

Royal Sussex County Hospital: A Fellowship in Anaesthetics

At a recent meeting of the Board of Management of the Royal Sussex County Hospital, presided over by the chairman, Dr. Donald Hall, an offer of £300 per annum for a period of seven years to meet the salary of a resident anaesthetist was announced. Since that meeting Dr. Hall has had an interview with Professor R. R. Macintosh of Oxford, and on February 14 the Board was in a position to approve in principle regulations governing this new and full-time post, which is to be known as the Mayo Fellowship in Anaesthetics. The Nuffield Professor of Anaesthetics (Professor Macintosh) will act in conjunction with the Royal Sussex County

Hospital in all matters concerned with the fellowship, which will be administered by trustees. Further matters connected with this appointment have been placed in the hands of a special committee with power to invite candidates for the vacancy, and an announcement appears in our advertisement pages this week. The holder will be granted facilities for research work in the hospital and in the Stephen Ralli Memorial Laboratory. This interesting appointment, made possible by the generosity of a Sussex resident, is not financially one of Lord Nuffield's many benefactions, though the Board is fortunate in having the co-operation of the Nuffield Professor of Anaesthetics, who has volunteered to help in the choice of a candidate and also to keep the person appointed under his direction for research. At the Royal Sussex County Hospital 9,836 anaesthetics have been given in the operating theatres alone during the past three years, so there is abundance of material, and the Stephen Ralli pathologist, Dr. L. R. Janes, will give the Mayo anaesthetist every facility for work in his laboratory. Thus the new departure is not merely for routine administration of anaesthetics but for the initiation of original work. There are already on the staff three honorary anaesthetists, with two assistants, and the Mayo anaesthetist, with ample time for research, will be on duty outside their routine hours for the purpose particularly of giving anaesthetics for acute surgical emergencies.

SCOTLAND

Health of Scotland

A preliminary statement of vital statistics for the year 1938 has been issued by the Registrar-General. The principal feature for 1938 was the low death rate of 12.6 per 1,000, which was the lowest ever recorded for Scotland and 1.3 lower than the rate for the previous year. The decrease was largely due to a decline in the number of deaths from influenza and from diseases of the respiratory system. The birth rate of 17.7 per 1,000 was 0.1 higher than the figure for the previous year, although it was 0.1 below the average for the preceding five years. Deaths from all causes numbered 62,952, and of children under 1 year 6,161. The infant mortality rate was 70 per 1,000 living births, which is the lowest recorded for Scotland, the previous lowest being 77 in 1935. The death rate from bronchitis was the lowest ever recorded, while that from pneumonia was 15 lower than that recorded in 1934, which was the lowest for any recent year. All forms of tuberculosis accounted for 3,431 deaths, of which 2,580 were from the respiratory form. Compared with the previous year there were 211 fewer deaths from pulmonary tuberculosis and 21 fewer deaths from non-pulmonary forms of the disease. Deaths from malignant disease again increased, being 8,073 in 1938, as compared with 7,810 in the previous year.

Lister and his Edinburgh Contemporaries

In a short and particularly well-written paper recently contributed to the *Edinburgh Medical Journal* (1938, **45**, 805) Dr. C. E. Douglas tells of Lister and his contemporaries at Edinburgh as he knew them. He shows how Lister, driven by the Fates, went to Scotland for a month before settling in London after a postgraduate course in France and Germany. The month became a quarter of a century, and when he returned to England he brought an international reputation, had become an Episcopalian, and had married a Scottish lady. Dr. Douglas tells of Syme and of Simpson; of Mackenzie and of Spence; of Joe Bell and of Patrick Heron Watson—all great operating surgeons who added lustre to the Edinburgh school of medicine. Of Watson, trained in the Crimea, he says: "A man is brought in anaesthetized into the theatre on a mattress. 'Pat' strolls in, one hand in his pocket, stoops and examines the hip, gives a short description of a dislocation. He then takes the foot, sweeps the limb round in a wide circle, flexes the knee, and with another circular movement the head slips into place with consummate ease." Such a light is illuminating, for we think of Patrick Heron Watson as a physician and an authority on dietetics rather than of the period when he practised as a surgeon. Of "Joe" Bell's foresight Dr. Douglas gives an excellent example. The nattiest of men in regard to his dress, "Bell's preparation for an operation was to turn back his coat sleeves, displaying a vast expanse of immaculate cuff. Once he had carried out a delicate operation involving the removal of a parotid tumour. A small vessel had been cut and had spotted his cuff. 'This is the only serious point,' says Bell, indicating with his scalpel the spots of blood. The usual laughter from the benches followed, few noticing what the teacher meant—to wit, the pale complexion of the droplets, indicating the marked degree of anaemia. This in a day when haematology as a science did not exist was an important observation." Such reminiscences by actual witnesses are of great value to the historian of medicine. They recall the personality of the individual rather than the broader characteristics by which he is apt to be remembered.

Chiropody in Scotland

At a conference luncheon held in Edinburgh on February 18 by the Scottish branches of the Incorporated Society of Chiropodists, Lieutenant-Colonel A. D. Stewart, F.R.C.S., superintendent of the Edinburgh Royal Infirmary, said that he was proud of the association of chiropody with the infirmary and looked forward to an extension of the work in relation to hospitals. Dr. R. W. Craig, Scottish Secretary of the British Medical Association, said that the public generally had a very imperfect realization of the far-reaching effects which foot discomfort could produce on other parts of the body. Many nervous disorders owed their beginnings to this, and the Society of Chiropodists was therefore doing much to promote the physical well-being and fitness of the people and thus rendering a service of national importance. At the present time there was still a large number of so-called chiropodists who were "mistreating" the public, and this was a matter which must receive attention from the Incorporated Society, who stood for an exceedingly high standard. Mr. Hanby, who replied, said that within the short space of two months the Group Council had drawn up a set of by-laws covering the standard of education and examination for chiropodists, which would affect the whole profession of chiropody in the British Isles.

Relief of Incurables

At the annual meeting on February 24 of the Association for the Relief of Incurables in Glasgow and the West of Scotland Sir James Macfarlane said that the association existed for the maintenance of Broomhill House for Incurables and the Lanfine Home for Consumptives. The latter had come into existence in 1904, and during the first five years of its work 24 per cent. of the patients under care had been discharged improved, while 64 per cent. had died. In the five years ending with 1938 19 per cent. of the patients had died and 32 per cent. had returned home improved in health, while 30 per cent. had been transferred to other hospitals for specialized treatment. These changed conditions had brought a new problem, and a scheme of extension had been approved by the directors for the treatment of patients "out of bed." At Broomhill Home eleven patients had been in continuous residence for over thirty years, while the general average residence was over ten years.

Correspondence

Research in Clinical Medicine

SIR,—The clinical units of medicine and surgery in the Welsh Medical School are not mentioned in your article of February 18 (p. 339). They were established in 1921 at the inception of the complete school, and have full-time professors and assistants and their own laboratories adjacent to their wards. In the near future pathology will be moved from outside to a new pathological institute in the hospital grounds. Then greater combination of work between pathology and the clinical units will enhance the opportunities for clinical research. The new provision will be at the disposal of the whole of the hospital clinical service.

A point not touched upon in your article is that the opportunities for clinical research available to the general practitioner should be utilized. So far as I know nothing has been done in the way of collating the mass of information available from the "panel cards." "Collective investigation" by the practitioner was instituted by your Association many years ago, and was no doubt to some extent productive for a time, but it has long since disappeared. Research in these and similar directions should be instituted or revived. I do not concern myself in this letter with the arrangements necessary for this, but I do say that the practitioner should be paid in some way for the additional work required.

All hospitals should publish annual clinical records based on a uniform system. These would be most valuable for purposes of research. I am hoping that the report of the Sankey Commission, with its suggestions of regionalization of hospitals and regional offices, will in its fulfilment establish record centres.—I am, etc.,

A. W. SHEEN,
Provost, the Welsh National School of Medicine, University of Wales.

Cardiff, Feb. 21.

Function of Full-time Clinical Chairs

SIR,—I feel that the time has come when someone ought to draw attention to the state of the full-time chairs of medicine, especially in London. The chairs are worth £2,000 a year, and difficulty is experienced in securing applicants. They were originally founded to promote research and to breed a type of clinician who would in due course become a full-time research worker. Consider what has happened instead. The part-time teachers in the hospitals have simply dumped most of the more irksome preliminary teaching on to the units, and research has become practically impossible. This we may judge from the paucity of good work which has been published, and it has been told to me by men who might have been applicants for the chairs. Many of the best men available are loath to devote themselves to almost whole-time hack teaching. The junior posts have simply become stepping-stones to the part-time posts on the staff. Surely it is time that the grants which are given to the schools were applied to their legitimate purpose.—I am, etc.,

London, N.W.11, Feb. 21. ACADEMICUS.

Fracture of the Olecranon

SIR,—The procedure I advocated for fracture of the olecranon (*Journal*, February 4, p. 214) when operation is advised will not, I am sure, influence the line of treatment practised by those satisfied with their present results, but I believe that it at least merits inclusion in the modern textbooks. I have no experience of suture of the fragments followed by treatment in full flexion, as practised by Mr. Hey Groves (February 11, p. 296), but I do not feel at the moment that this would relieve my anxiety. My experience of fractures involving joint surfaces is (1) that accurate reduction is difficult and, when obtained, fixation of the joint is necessary for some weeks before active movements can be safely allowed; (2) that periarticular reaction following operation necessitates a considerable period of physiotherapeutic treatment; and (3) that especially in elderly patients the end-result is seldom perfection. All these factors are eliminated by early removal of the detached fragment and accurate repair of the extensor apparatus. I have to-day seen three recent cases on which Mr. Hendry has operated.

Case 1.—A woman aged 59, on October 17, 1938, sustained a fracture of the base of the olecranon with a septic wound. Two days later the fragment was removed at operation. When seen on February 20 she had complete, free, painless controlled movement. Her only complaint is that the arm is not yet quite strong enough for scrubbing.

Case 2.—A youth aged 17, on December 19, 1938, sustained a fracture of the olecranon, about the middle, with tilting of the fragment. He was operated on eight days later and returned to his work as a machinist on January 9. On February 20 the elbow was clinically normal in appearance and function.

Case 3.—A youth aged 16, on December 12, 1938, had a fracture of the olecranon at the base, extending completely down the posterior surface of the ulna. The fragment was removed at operation five days later, and free use allowed on January 9. On January 30 he returned to his work as a moulder. On examination on February 20 the elbow was functionally normal.

None of these patients had any physiotherapeutic treatment and all are able to raise their body weight by extension of the elbows when lying flat in the prone position. I believe that where full, painless, voluntary control of a joint is obtained Nature will gradually restore the muscle power necessary for the function demanded of it.—I am, etc.,

Birmingham, February 20. NAUGHTON DUNN.

SIR,—Mr. Naughton Dunn's article which appeared in your issue of February 4 (p. 214) has provoked some interesting correspondence. May I make a few comments on the subject? The interest aroused is partly due, I think, to the involvement of a question of principle in fracture treatment. Excision of inconvenient broken fragments is as old as modern bone surgery. An impetus to the practice was given by Mr. Brookes's convincing demonstration of the excellent functional value of the knee from which the patella had been excised. Mr. Dunn now shows the result of excising an olecranon fragment. Granted that under certain circumstances excision of fragments is a perfectly sound procedure, is there not a danger of the idea carrying us too far? It would, I think, be unfortunate if it became customary to say, "Here is an awkward bit of bone to fit in place, let us cut it out." With modern resources in treating fractures the surgeon should aim at a 100 per cent. result. In itself excision of fragments makes such an ideal impossible.

In regard to fractures of the olecranon, I agree in general with the views expressed by Messrs. E. W. Hey Groves (February 11, p. 296) and R. Watson-Jones (February 18, p. 358). Personal impressions perhaps do not carry much weight, and to support my contention that the conservative treatment of fractures of the olecranon gives good results I will quote from Wilson's *Management of Fractures and*

Dislocations. Twenty-four cases of fracture of the olecranon are reported on as having been followed up. In summing up the late results the statement is made that the open operation has been universally satisfactory.

In estimating the value of any particular method of fracture treatment the surgeon should not accept the shortness of convalescence as the main criterion of its value. The final result of our treatment has to serve the patient for the rest of his life. The replacement of a lost fragment may sometimes defy even the skill of a Hey Groves.—I am, etc.,

London, W.1, Feb. 27. C. MAX PAGE.

Direct Inguinal Hernia

SIR,—I was greatly interested in Mr. W. G. Gill's paper on this subject in the *Journal* of February 11 (p. 263). About two months ago I met with this condition for the first time. The diagram given by Mr. Gill is practically identical with the anatomy of my case, except that in the latter the sac was rather more narrow and tubular. The thickening of the transversalis fascia round the aperture was very well marked; there was no involvement of the bladder. I remember hazarding the opinion to my house-surgeon that it might possibly be of traumatic origin: the thickening round the little ring might be regarded as support for this view. In the past thirty years I have operated on a good many hundred hernias and had not met one like this before, so to me it appears a rarity. Of course it is possible that when such a hernia grows really large the neck is greatly stretched and the condition may resemble the more usual type of direct hernia. This type is so curious and definite in its nature that one could not readily miss it at operation.—I am, etc.,

Weston-super-Mare, Feb. 17. RICHARD WARREN.

SIR,—Surgeons are indebted to Mr. Gill for putting the button-hole type of direct inguinal hernia "on the map." Most of us have met this variety. I have three or four times, but beyond provoking the passing interest that it was unusual no one but he and Mr. Ogilvie seems to have defined it.

The purpose of this note is to mention a point which was present in all the patients I treated and in whom the swelling was small. The hernial sac could be likened to a back collar-stud, the head of which corresponds to the small fibro-fatty protrusion under the external oblique, the short column to the neck in the tight slit in the conjoined tendon, and the large back to an extraperitoneal fatty expansion of the hernial sac. The latter was a constant and somewhat surprising feature, and its removal appears to me essential in order to effect a cure. To expose it the button-hole in the conjoined tendon must be enlarged, and the temptation to limit the operation to transfixion of the neck, removal of the head, and reduction of the stump should be resisted. In contrast to the usual direct inguinal hernia the surrounding aponeurosis was "of good substance."

The condition can be likened to the interstitial hernia that occurs in the midline above the umbilicus, and there is a good deal of granular fat associated with both sacs. Both may be the product of a violent effort causing a localized split in the aponeurosis, thrusting a blob of extraperitoneal tissue through the defect.—I am, etc.,

London, W.1, Feb. 26. HAROLD DODD, Ch.M., F.R.C.S.

SIR,—I was much interested in Mr. W. G. Gill's paper on this subject in your issue of February 11 (p. 263), and for some time have been surprised that the matter receives little or no attention in the standard textbooks, for in a personal series of 156 cases of inguinal hernia I have in five cases observed the condition he records. In all of them the anatomical features were similar to Mr. Gill's description and that of Mr. Ogilvie in Maingot's *Post-graduate Surgery*. In one, strangulation had occurred and a portion of the bladder had accompanied the sac through the opening in the transversalis fascia. In another, a male had had an operation for right inguinal hernia performed twenty-two years previously with a satisfactory result, until the appearance of another hernia at the same site twenty years later. At the second operation I found a small pyriform sac appearing through a well-defined opening in the transversalis fascia medial to the deep epigastric vessels. Most interesting of all was the case of a young man who presented himself for the radical cure of an indirect inguinal hernia. During the course of the operation, in which I found a thin-walled sac issuing from the internal abdominal ring, I discovered a circumscribed opening in the transversalis fascia sufficiently large to admit the tip of a finger and medial to the deep epigastric vessels. There was no evidence of a peritoneal sac or extraperitoneal fat protruding through it and no indication that the hiatus gave passage to a blood vessel. I inferred that the opening was of congenital origin and the potential site of a hernia, and it was therefore closed.

In all five cases there was a striking overgrowth of the extraperitoneal fat covering the advancing sac, but I very much doubt that the fascial hiatus is produced by weakening of the fibrous sheet as Mr. Ogilvie suggests, for all the openings had very well-defined margins, with no suggestion of a condensation of the transversalis fascia over the protruding extraperitoneal fat, which might be expected had the openings been due solely to "pulsion." Hernia through the linea semilunaris in relation to the segmental vessels and nerves is well recognized, and I am inclined to regard this variety of direct hernia as morphologically in the same category. As the condition is not apparently rare, I have for some time classified direct inguinal hernia in two types: congenital, in which a distinct opening exists in the transversalis fascia; and acquired, in which there is a slowly increasing bulge of the whole of that portion of Hesselbach's triangle unsupported by the conjoined tendon.—I am, etc.,

Hallam Hospital, West Bromwich, Feb. 25. W. E. WIMBERGER.

Treatment of Eclampsia

SIR,—Dr. E. K. Mackenzie is not consistent in his letter in the *Journal* of February 11 (p. 299). After stating, "I did not make his communication the basis for a denunciation of all modern clinics, but the basis for a very strong and sincere protest against his methods," he goes on to say: "The objection I have to these modern clinics is the conviction, derived from my visits to them and such letters as those of Dr. Thomas, that in them our women are treated as ciphers." His protest, of the sincerity and strength of which he leaves no doubt, seems therefore to be directed not only against my methods but against other modern clinics which he has visited. As to the women being treated as ciphers, this is a quite unfounded statement so far as the Croydon women are concerned, and, I am sure, those of other clinics too. In Croydon their home conditions and financial positions are inquired into by the almoner; they are seen at the clinics on an average at least six times during each pregnancy (many of them much more often); those who need them are given the services of a home help while they are in hospital, or, if thought more suitable, their children are admitted into a home, well fed and properly looked after

during the same period; mothers and babies are visited in their homes by health visitors after discharge from hospital and the mothers are seen and examined at the post-natal clinic a month after discharge. Lastly, all mothers are urged to attend the child welfare clinics with their babies, where they are advised on all such matters as feeding and infant ailments as are necessary, and if the mothers themselves are not well they are again referred to the post-natal clinic. If this can be called being treated as ciphers then I must have mistaken the meaning of the word.

Dr. Mackenzie and I are in agreement that the question of induction of labour in cases with a diastolic blood pressure of 90 mm. Hg or over which does not subside under the conditions I have described is one of far-reaching importance. This was why I raised the subject in my letter of December 24, 1938 (p. 1336). The question of approval of my methods, however, requires consideration of the other aspect—namely, the wisdom or otherwise of allowing these cases to continue with such a raised blood pressure, in view of the risks to the mother of accidental haemorrhage, to the foetus from accidental haemorrhage or placental infarction, and of subsequent renal damage or persistent hyperpiesis for the mother in later life. Dr. Mackenzie has not convinced me that he is justified in allowing such cases to go to term. On the contrary, in his letter of February 11 he describes one of his cases thus: "One patient, who had a raised blood pressure but no albuminuria, five years after her confinement exhibited a blood pressure of 174/98 mm. Hg with no albuminuria but with the symptoms of hyperpiesis." Does not this case support my contention? Incidentally, how can he say that all his cases "fully recovered from their abnormal blood pressures" when in the next paragraph he describes the above case of hyperpiesis?

In regard to accidental haemorrhage, I would like to refer to a paper Dr. Mackenzie published in the *Caledonian Medical Journal* (1930, **14**, 300), in which he describes two cases of accidental haemorrhage to which he had been called in an emergency, one of whom recovered; the other died. His description is a very vivid one, and includes the following statements in his introductory remarks: "To the patient it is really a terrible experience . . . in which death appears inevitable, and in which terror of the unknown seems to alternate with a feeling that death would be a welcome change from the agony of the moment"; and "The physician . . . passes through an unforgettable experience, one which, for some time, seems to undermine his feeling of confidence, and even affects his health." With both statements we will all heartily agree. Both cases were about six and a half months pregnant. On his arrival Dr. Mackenzie found them "collapsed and pulseless, countenance death-like, abdomen swollen, and, right in the centre, a hard, board-like mass, the womb. No foetal parts could be made out. You simply felt a tense, rigid, excruciatingly tender mass." The past history of the first case was negative, but he states that on the tenth day after delivery "albuminuria was negligible, but her blood pressure was 200/100 mm. Hg." No record of the blood pressure is given in the second case, but as she died of uraemia twenty-six hours from the time he first saw her it is reasonable to suppose that she also must have had a raised blood pressure for some time. If Dr. Mackenzie had been called in to these patients before the catastrophes happened, when, no doubt, he would have found that they had raised blood pressures, would he have considered the question of induction of labour, and would not the procedure have saved the first woman from the "terrible experience" she went through, being, as it was, an escape from death by the narrowest of margins, and might it not have saved the second woman from death itself? Or would he have persevered with treatment till the advent of term, supposing that he was successful in staving off the immediate danger of accidental haemorrhage? Would such a risk have been justifiable?

I am obliged to Dr. Mackenzie for so kindly furnishing further particulars of his 100 cases, and regret the trouble it must have caused him to do so. The subsequent histories of such cases are of great interest and importance, hence my desire for them in regard to his cases, the immediate results of which were so good. It is, indeed, extraordinary that he should get such results, and I ask myself why the women under my care seem to behave so differently. Other clinics seem to be in the same position as myself. For instance, from the clinical report of Queen Charlotte's Maternity Hospital for 1937 it would appear that they considered it necessary to perform surgical induction in no fewer than fifty-eight cases of albuminuria with hypertension, of which twenty-eight had diastolic blood pressures of between 90 and 100 mm. Hg, out of a total of 115 "booked cases" admitted for treatment. I was particularly interested in Dr. Mackenzie's case, Mrs. M., who had a blood pressure ranging between 210/180 and 200/160 mm. Hg for two months, and had a "fine baby, but a rotten diseased-looking placenta." May I, at the risk of taking up too much space, be permitted to give the following histories of cases which have all been under my care in the past three months. The contrast will be obvious.

1. Mrs. D., primipara. In hospital for eight days, with blood pressure 130/90 to 160/120 mm. Hg; trace of albumin, no casts, no symptoms whatever; no previous renal disease or scarlet fever. Surgical induction: live child, 7 lb. 6 oz. On twenty-third day after delivery blood pressure was 144/100 mm. Hg. Still in hospital.

2. Mrs. R., primipara. In hospital for seven days, with blood pressure 148/90 to 198/124 mm. Hg; cloud of albumin and granular casts; slight oedema of face; no symptoms. Said she felt quite well on admission; no previous renal disease or scarlet fever. Medical induction: live child, 5 lb. 7 oz. Still in hospital on twentieth day after delivery, with blood pressure 140/90 mm. Hg.

3. Mrs. W., 5-para, thirty weeks pregnant. Ten days' treatment under own doctor before admission for toxaemia, headaches, hyperpiesia. No previous renal disease or scarlet fever. Blood pressure on admission, 190/110 mm. Hg; trace of albumin and granular casts; severe headache, abdominal pain, and spots before eyes. Spontaneous delivery five days later (induction had been fixed for this day): macerated stillbirth. Still in hospital on thirty-fourth day after delivery, with blood pressure 168/110 mm. Hg; headaches for twenty days post partum.

4. Mrs. W. Previous stillbirth and two abortions. Admitted at thirty-second week, with oedema, albuminuria, no casts, slight headache, blood pressure 162/92, which rose to 158/102, and then dropped to 144/96 mm. Hg (eleventh day after admission), when she went into labour spontaneously. Stillborn child, 3 lb. 4 oz. The placenta was more than one-third infarcted. In hospital twenty-one days before blood pressure became normal.

5. Mrs. G., primipara. No previous renal disease or scarlet fever. Admitted at thirty-fifth week, blood pressure 166/110 mm. Hg, slight backache, trace of albumin, no casts. Blood pressure dropped to 144/100 during next four days, then rose to 158/108 mm. Hg; she complained she could not see the patient in the next bed, had a loss of 4 to 6 oz., with slight fundal tenderness. Surgical induction was done within an hour of the loss; stillbirth; 6-oz. clot behind placenta.

6. Mrs. B. Previous history: four full-time births, one premature (stillbirth, toxaemia), and one premature (stillbirth, accidental haemorrhage, with suppression of urine for twenty-four hours after delivery; recovery after intravenous 20 per cent. sod. sulph.). Admitted for hysterotomy and sterilization. At operation, pregnancy being fourteen weeks, when uterus was opened there was a clot the size of a hen's egg in the fundus, dark brown in colour, and obviously several days old.

7. Mrs. C., primipara. No previous renal disease or scarlet fever. Blood pressure 136/90 for six days before admission,

and 138/94 mm. Hg after five days' treatment. Trace of albumin, no casts; felt quite well. Medical induction: live child, 6 lb. 14 oz. Urea clearance twelve days after delivery very poor. In hospital for six weeks before blood pressure became normal. Seen by me nine weeks after delivery, when urine was clear, but blood pressure was still 130/90 mm. Hg, and she was still on a low protein diet.

The above case records show that while the underlying disease may manifest itself in a variety of different ways, the one constant sign, always staring us in the face, is the raised blood pressure. Are we justified in ignoring it?—I am, etc.,

Croydon Obstetric Service, Feb. 20. RUFUS C. THOMAS.

Blood Transfusion in Obstetrics

SIR,—A few important principles seem to have been insufficiently stressed in the correspondence following Mr. John Stallworthy's article upon the above subject (*Journal*, January 28, p. 153). It is essential that fluid should be introduced directly into the vascular system when the systolic blood pressure has been depressed below 80 mm. Hg as a result of severe haemorrhage. Under these circumstances no indirect route allows sufficiently rapid absorption to compensate satisfactorily for the fluid loss, and a simple intravenous infusion should be begun immediately, whether or not a blood transfusion will be required later. Delay is dangerous.

On the other hand, fluid should not be infused into the vascular system in excess of requirements, as this would be liable to increase transudation through the permeable capillary walls, precipitating cerebral and pulmonary oedema, and, in addition, by diluting the residual erythrocytes and encouraging capillary stagnation, to reduce the oxygen-carrying power of the blood. Less fluid is required when a vasoconstrictor is given, and an ephedrine–glucose–gum solution has given satisfaction for intravenous use (*Journal*, September 12, 1936, p. 537). This almost invariably achieves a steep rise in blood pressure of about 30 mm. Hg, acceleration of the circulation, and an increase of the oxygen-carrying power of the blood by keeping the available erythrocytes in motion. A slow infusion of one pint of this preparation usually proves adequate as a life-saving measure.

Uterine haemorrhage nearly always stops when the systolic blood pressure falls below 70 mm. Hg. When this low level has been reached intravenous infusion should be begun immediately and active measures for preventing further haemorrhage should be delayed for a short time until the patient begins to respond. With higher blood pressures haemorrhage should always be checked before the infusion is started. Further, the importance of maintaining the raised fluid level after simple infusion, usually by the oral or rectal route, should not be forgotten. Neglect of this simple reinforcement when the crisis is passing may be responsible for many cases of secondary retrogression. My personal view regarding blood transfusion is that the *total* number of transfusions given for the post-haemorrhagic state is probably adequate but that insufficient discrimination is exercised in the selection of suitable patients for this treatment. In many instances transfusion is withheld when it would undoubtedly save life, yet, paradoxically, a great number of unnecessary transfusions are given, and this is most unfair to that public-spirited body of men and women, the blood donors. While I appreciate that in doubtful, borderline cases it is advisable to give transfusions, I maintain that the border should not be too wide.—I am, etc.,

Newcastle-upon-Tyne, Feb. 24. WM. HUNTER.

Acute Retention of Urine

SIR,—The article by Mr. R. Ogier Ward in your issue of January 21 (p. 121) is of interest to the physician as much as to the surgeon—in connexion especially with acute retention in the elderly male suffering from heart failure with generalized oedema and in whom prostatic hypertrophy is present but not suspected. In these cases the administration of any remedy producing a rapid diuresis is a dangerous procedure, owing to the risk of retention of the oedema fluid in the urinary bladder and consequent overflow per urethram. I have recently come across a few such cases, but have not seen anything in print about this. Therefore in all elderly male patients with cardiac failure and oedema a rectal examination to determine whether the prostate gland is enlarged, before giving any diuretic, is essential. One patient told me that the discomfort of retention and overflow was considerably greater than that of heart failure and oedema. If prostatic hypertrophy is found very slow diuresis should be instituted, and the physician should even then be prepared for the necessity of catheterizing the patient.—I am, etc.,

M. M. POSEL, M.D., M.R.C.P.Lond.

Johannesburg, Feb. 13.

Incidence of Psychoneurotic Illness

SIR,—For some time the question of the quantitative measure of the psychoneurosis in this country has been under discussion, and a British Medical Association committee has been set up to collect data. I submit the following analysis of 1,029 cases of medical sickness which have come under my personal review over approximately a three-year period (October, 1934, to June, 1937) at the Bellahouston Dispensary of the Victoria Infirmary, Glasgow. It must be made clear initially that this dispensary is open freely to the public and that only about 5 per cent. of the cases are referred from doctors. I suggest, therefore, that it gives a fair and reasonably accurate cross-section of the sick public who are living close to the poverty line. Further, the dispensary in question bears no special neurological label; it is a medical dispensary and professes to be no more than that. The patients are allotted to the physicians on duty in strict rotation and are not selected in any way by the clerical staff on admission. I have ventured to distribute our 1,029 cases in the following manner, and have verified the diagnosis of each case, where any reasonable doubt existed in my mind, by reference to the pathological and radiological departments of the infirmary. The division, for brevity, runs into five groups:

I. Organic heart disease	25
II. Rheumatism and arthritis, including chorea in children	171
III. Respiratory diseases, including true bronchial asthma (13 cases) and pulmonary tuberculosis (3 cases)	238
IV. Other organic diseases, including senility; anaemias; debility following acute illnesses; menopausal, post-partum, and lactational nervous debilities; gastric, arterial, metabolic, and renal diseases, etc.	475
V. Psychoneurotic illnesses	120
Total	1,029

These figures reflect the relative incidence of the diseases quoted in the Glasgow area in question so far as I have seen them. Heart disease is not common. Rheumatism

accounts for 16.6 per cent. of these cases; respiratory diseases for 23.2 per cent., including a few asthmatics and only three cases of true phthisis. Group IV is too diffuse to be dealt with here. Coming to Group V we find that the dispensary patients who are on the sick list from psychoneurotic illness represent 11.65 per cent. I have scrupulously excluded from this group any case of organic origin. In all 120 cases there has been a flagrant mental trauma to account for all the symptoms. Except in a few elderly patients the condition cleared up and the patient recovered, when treated by psychotherapy alone, after four or five attendances each. The kind of mental trauma is of interest. Poverty and unemployment play a much smaller part in the causation of the neuroses than might be supposed. To most of those patients poverty has become, or has always been, their normal state, and unemployment affects women at home more than most of the men, who have outdoor interests apart from work. The main mental traumata have been such emotional shocks as family bereavements, often multiple and rapid in succession; loss of "face," as the Chinese would term it, in their own social circle; and fears of the unknown allied to superstitious beliefs of all kinds.

There are many secondary psychoneurotic ailments to be found in such endocrine disorders as the emotional and vasomotor instabilities of the menopause, but as these are secondary only they have been excluded from Group V. I feel sure that the percentage incidence of psychoneurotic illness in Glasgow is not less than 11.65 among the sick poor, and I am certain that this proportion is higher among the intellectual middle class.—I am, etc.,

CHARLES SHEARER,
Physician to Bellahouston Dispensary,
Glasgow, Feb. 15. Victoria Infirmary.

Skin Protectives

SIR,—It was with the greatest interest that I perused the article by Dr. P. B. Mumford on a suggested skin protective in the *Journal* of February 11 (p. 266), as it was at the Section of Dermatology of the British Medical Association in Belfast in July, 1937, under the heading of "Some Minor Methods in Dermatology" (August 7, 1937, p. 288), that I first called attention to the numerous uses to which emulsifying bases could be put in this branch of medicine, and pointed out how very antique as well as unsatisfactory, both from a physiological and cosmetic standpoint, some of our present ointment and lotion bases were. At that meeting I showed the many and various uses to which emulsifying bases could be put, in the form of creams and lotions, etc. The agent to which I then drew particular attention was triethanolamine (trihydroxytriethylamine) used as an emulsifier. Among the non-mucilaginous creams so prepared I showed examples of this combined with stearic acid, vaseline, cera alba, menthol, etc. For the past three years I have used at the Leicester Royal Infirmary a hand cream, with the following formula and composition, which has proved highly satisfactory, reasonably cheap, requires no special apparatus to prepare, and is quite elegant cosmetically.

℞ Acid. stearic.	2½ oz
Cera alba	1 oz.
Vaseline molle alba	2½ oz.
Paraffin. liquid.	1½ oz.
Melt and emulsify with heated:	
Triethanolamine	4 drachms
Aqua (bulliens)	ad 24 oz.
Then incorporate:	
Magnesium stearate	2 oz.

Misce. Fiat cremor.

The most expensive ingredient in the above cream is the magnesium stearate, which might be omitted and other cheaper substances used, but I prefer to keep it in. The cost of the cream is 1s. 9d. per lb. It will not leave any grease marks on paper or fabric handled with it. To use it a very little of the cream is gently rubbed into the skin. It leaves no grease on the surface, but imparts a nice smooth, silky surface to the skin. Pure triethanolamine is strongly alkaline in reaction, and when combined as above with stearic acid, which latter has a *p*H value of 200 to 210, and magnesium stearate, which has a very low alkalinity and is put in to give body, opalescence, and silkiness to the cream, as well as to act as a mechanical barrier, the resulting cream is only very slightly alkaline in reaction. This slight alkalinity does not seem to change with age, as I have tested some that was made four or five months ago, and the reaction was the same. Normally human sweat is generally acid in reaction, containing hydroxy acids in the grease or sebum, in the form of oleic, stearic, palmitic, and butyric acids, the composition of which closely resembles lanoline. I therefore think the very slight degree of alkalinity of the above cream is not any drawback to its use, and this would seem to be borne out by my practical experience of its use during the past three years.

I might state that my notice was first drawn to the use of triethanolamine in the hosiery industry, where the ordinary commercial variety of it, which is not so pure chemically as that used in pharmacology, is used undiluted to remove grease stains from woollen and other fabrics in a remarkably rapid and effective manner. During this process the workers' hands are often exposed to its action, in strong concentration, daily. As I normally come across numerous hosiery workers in Leicester, which is the largest centre of that industry in the world, I would soon know if this process, technically called "spotting," was causing trouble, and I cannot recall one instance of this occurring. I fully agree with Dr. Mumford that if a satisfactory skin protective could be found for reducing the incidence of occupational dermatitis from the very large number of widely different substances which may exercise an irritating effect on certain individuals, it would be a great boon, but it is an extremely difficult problem. To give an example, another of Leicester's large industries is the boot and shoe trade, and here one often gets an occupational dermatitis in those working in the "stock room," where many de-greasing substances, such as benzene, petrol, acetone, amyl acetate, paraffin, turpentine, trichlorethylene, ammonia, soap and water, etc., are used and handled by the operatives. All of these substances will remove any known protective that can be used on the exposed parts, as well as the normal greasy contents of the skin, thus leading to potential trouble. In a lengthy review of 1,004 cases of occupational dermatitis, according to occupation, Dr. John Godwin Downing of Boston (*Arch. Derm. Syph.*, January, 1939) finds that 220 were employed in the boot and shoe industry and forty-two were in the woollen industry. Obviously these comparative figures for the various trades would depend on the nature of the various industries carried on in any given area examined.

The whole problem of prevention of occupational dermatitis bristles with difficulties, as any dermatologist cognizant of industrial processes knows, but a skin protective is well worthy of a trial in many departments, and in my opinion could be advantageously used in several. I have already got the co-operation of some of the workers to try this method when dealing with known potential irritants, and will watch the results with interest. "Time marches on," but our lotions linger, our creams cling, and

our unguenta have remained unchanged for decades. Surely it is time to review our antiquated armamentarium and try to interest ourselves, as the cosmeticians have done, in the chemistry of emulsifying agents and solvents. There is a wide field of exploration in the medical use of these, and just as the study of "plastics" has led to enormous advances in the industrial world, so the former might help in the metamorphosis of materia medica.—I am, etc.,

F. A. E. SILCOCK, M.D., D.P.H.,
Hon. Dermatologist, Leicester Royal Infirmary.

Leicester, February 20.

Shock Therapy

SIR,—Referring to your report of the meeting of the Section of Psychiatry of the Royal Society of Medicine in the *Journal* of February 25 (p. 405), there is a belief, well founded, that the shock therapy for the treatment of schizophrenia and other mental diseases does good. At the same time doubt has been expressed as to what exactly happens, and it is supposed that if the biochemical processes to which the shock gives rise could be ascertained these could be used and convulsions and shock could be eliminated. I realized that in the treatment of schizophrenia, in all the methods mentioned or tried, both old and new, whether it be trap-door or insulin, shock is a common factor, and a chemical substance always associated with shock is histamine. In fact, histamine is produced not only in insulin shock but in every variety of shock, including anaphylaxis, surgical shock, the shock of acute intestinal obstruction, and extensive burns. Some years ago I started to work with a mixture of insulin and histamine, believing that thereby I should get the same results while eliminating the convulsions. So far the results seem even better, and the method has been tried elsewhere with results as good as mine have been.—I am, etc.,

HORACE HILL.

Salisbury, Feb. 26.

Fatal Result of Swallowing a Foreign Body

SIR,—This tragedy of the swallowed halfpenny emphasizes once again the need for immediate action where any small object disappears, or is thought to have disappeared, in the mouth, and shows how imperative it is to lose no time in having a radiograph taken. It is a simple enough precaution, and upon it may hang the life of a fellow being.

Quite recently a child aged 3 swallowed a halfpenny. He did not choke or cough or show any immediate signs of distress; he merely pointed down his throat with his finger and said to his mother, "Money gone down there." The mother at once rang up her doctor and told him what had happened. The doctor asked if the child was showing any signs of distress, and on hearing that he was not he said, "Well, give your little boy plenty of stodgy food, and if he really has swallowed the halfpenny he will pass it."

Three days later the mother took the child to the doctor to be examined, saying he was refusing to eat anything solid. Otherwise he was quite happy and cheerful. He did not complain of any pain, and he looked quite well. The doctor still doubted whether the child had really swallowed the halfpenny, and at the mention of an *x*-ray he spoke as if it were unnecessary and advised waiting at least another day or two, still recommending stodgy food as the only treatment. Two days later the mother again urged the question of an *x*-ray examination, and the doctor then sent her to get one taken at a hospital. The child was, of course, treated there as an emergency case and radiographed at once.

The *x* rays showed the halfpenny embedded in the oesophagus, and from the appearance of the film the surgeon at the hospital judged immediately that the case was beyond hope. Nevertheless he operated, and succeeded eventually in extracting the coin, but the child died soon afterwards from a perforated oesophagus.

Arising from the experience of this tragedy appears to be the fact that a halfpenny is too large an object to pass down the oesophagus of a child of 3; and a second important fact emerges—namely, that one should not be influenced in cases of this kind by the absence of signs of distress. It calls to mind the case of the crown of a tooth that disappeared in the mouth of a dental patient some years ago and went into the trachea. This patient, an adult, did not cough or choke or do any of the things one would expect when a solid object passes into the air passages. It was supposed at the time that the fragment of the tooth had been swallowed into the stomach and would therefore do no harm. Actually it lodged in the lung and caused the patient's death six months later.—I am, etc.,

C. S. ABRAHAM, *M.C.*, L.D.S., R.C.S.
Municipal Dental Hospital, Shoreditch, E.2.

The Nature of Growing Pains

SIR,—I was particularly interested in Dr. G. C. Hawksley's article (*Journal*, January 28, p. 155) on growing pains, as I was recently responsible for an investigation into rheumatism occurring among the elementary school children in Blackburn. I collected a series of forty-eight children who could definitely be labelled as "rheumatic," the diagnosis being made either as a result of clinical examination, which included an electrocardiograph in most cases, or on a reliable history of a previous attack of rheumatic fever or chorea.

As part of the investigation the rheumatic manifestations of these children were compared with those of two other groups of school children—one composed of the brothers and sisters of the rheumatic children and the other of unselected children. All three groups included children of both sexes and of all ages between 4 and 14, and were representative selections of the elementary school population of an industrial town. The results are shown in tabular form, and seem to me to point to a correlation between the severer manifestations of rheumatism and growing pains, although the number of children investigated is too small for one to be dogmatic.

Rheumatic Manifestation	Rheumatic Children (No. Investigated: 48)	Brothers and Sisters of Rheumatic Children (No. Investigated: 70)	Unselected Children (No. Investigated: 49)
Rheumatic Fever ..	37.5 per cent.	0	0
Chorea	25 ,,	0	0
Recurrent attacks of growing pains ..	66.7 ,,	11.4 per cent.	12.2 per cent.
Frequent sore throats	31.25 ,,	10 ,,	8.2 ,,

Although many cases of growing pains can be explained by temporary infection, postural and orthopaedic deformities, etc., I cannot agree wholeheartedly with Dr. Hawksley that there is no relation between growing pains and juvenile rheumatism. The aetiology of the latter is still obscure, and until we know more about the causation of this distressing disease of childhood I would advocate that all children complaining of frequent attacks of growing pains, whether of the articular or muscular type, should be regarded as potentially rheumatic and should be thoroughly investigated, and, if necessary, kept under

constant medical supervision until a definite diagnosis has been made. In most cases this period of investigation need not entail any absence from school providing that games and physical exercises are suitably restricted. I wish to thank Dr. V. T. Thierens, medical officer of Health, County Borough of Blackburn, for his permission to give the figures quoted in this letter.—I am, etc.,

J. F. WARIN,
Assistant Medical Officer of Health.

Birmingham, Feb. 22.

Vaginal Cysts: Persistent Vesiculae Seminales?

SIR,—I was recently consulted by a primipara, aged 29, at the beginning of her fourth month of pregnancy. She complained of a feeling of swelling and discomfort in the posterior part of the "forebody," which symptoms had been present since the beginning of her pregnancy and had been steadily increasing in severity. On examination I discovered what I took to be a cyst about the size of a hen's egg low down on the posterior vaginal wall. As this threatened to prove a serious complication at parturition I advised immediate operation. The patient was admitted to Newcastle General Hospital, where the cystic condition was dealt with radically by Mr. J. Collingwood-Stewart. His report is of particular interest: "At the operation two distinct cysts were found, one on either side of the mid-line between the posterior vaginal wall and the rectum, and they contained glairy fluid. These cysts were considered to be Gärtner duct cysts."

Cysts of Gärtner's duct are described as occupying an antero-lateral position in the vagina in close proximity to the urethra. Cysts of the posterior vaginal wall are described as single and due to trauma. According to embryological precept, the Wolffian ducts in the female usually fail for some obscure reason to complete their full course and come to an untimely end just lateral to the upper part of the uterus or of the cervix. When they do occasionally, so to speak, make the distance, they traverse the walls of the vagina laterally and are there known as the ducts of Gärtner; and these are the ducts which give rise to the Gärtner duct cysts. I have never seen any reference in the literature to the possible presence in the female of rudimentary vesiculae seminales, which as offshoots of the ducts of Gärtner should be located low down between the vaginal and rectal walls; but it is surely as reasonable to expect to find homologues of the vesiculae seminales in the female as it is to find nipples in the male and a penis (clitoris) in the female. I therefore suggest that the case I have quoted is one of "cysts of the seminal vesicles," and, as a corollary, that some of the cysts of the posterior vaginal wall usually described as traumatic may be found to be of that nature.—I am, etc.,

J. A. L. MAGEE.

Newcastle-upon-Tyne, Feb. 24.

Vitamin D in Dietetics

SIR,—We thoroughly agree with the points of view put forward by your correspondent Dr. Chalmers Watson (February 18, p. 357). Unfortunately, the available methods for estimating the vitamin content of food are subject to very wide margins of error, and, further than this, all foods that are rich in vitamins vary quite widely in their vitamin content. This has led to extreme confusion both as to the richness of normal foods and as to the actual human requirements for the various vitamins. Within our own experience it takes five years or longer to arrive at a reasonably accurate quantitative figure for the richness in vitamin value of any food. Butter and cod-liver oil may be cited as two examples, and the work, besides being tedious, is very expensive. The dictum that we should rely on the proved value of fresh foods until the quantitative situation has been clarified is certainly appropriate. Our efforts, so far as cod-liver oil is concerned, have always been concentrated on conserving the full fresh food value of this oil and making it available in an absolutely unspoiled condition both to the medical profession and to the user.

Your correspondent Dr. Eva McCall (February 11, p. 300) directed attention to the fact that the prejudice against cod-liver oil mentioned by Miss Lindsay and Professor Mottram (January 7, p. 14) was probably exaggerated. The truth of the matter is that cod-liver oil is much more perishable in its quality as a food oil than in its vitamin value, which can remain intact long after the oil has, by mishandling, become unthinkable as a food or even as a medicine. Another factor in operation with her has probably been the lower intake of oil itself, since the *British Pharmacopoeia* malt and oil has only 10 per cent. by weight of oil present in it. It is nowadays unnecessary to swallow damaged, repellent oil or excessive quantities of oil to get all the vitamins A and D necessary.—I am, etc.,

K. MACLENNAN,
General Manager, British Cod Liver Oil Producers (Hull) Ltd.

Hull, Feb. 24.

Universities and Colleges

UNIVERSITY OF OXFORD

On February 25 the honorary degree of D.Sc. was conferred on Dr. del Rio Hortega, formerly director of the National Institute of Cancer, Madrid.

P. E. H. Adams, B.M. (Exeter College), has been re-elected to the Margaret Ogilvie's Readership in Ophthalmology until September 30, 1941.

At a Congregation held on February 25 the following medical degrees were conferred:

B.M.—B. A. M. Brown, R. W. Parnell, J. M. Almond.

UNIVERSITY OF CAMBRIDGE

At a Congregation held on February 25 the following medical degrees were conferred:

M.D.—A. Willcox.

M.B., B.CHIR.—*M. J. Ingram, *C. G. Rob, *P. C. Conran, *G. Bourne, J. I. H. Laurie, A. Leese, E. W. O. Adkins, J. Arnott, K. G. Bergin.

* By proxy.

UNIVERSITY OF LONDON

At a meeting of the Senate, held on February 22, H. P. Himsworth, M.D., F.R.C.P., was appointed, as from April 1, to the University Chair of Medicine, tenable at University College Hospital Medical School.

Mr. Lionel V. Cargill, F.R.C.S., was appointed a Fellow of King's College.

The title of Professor of Physics in the University was conferred on Mr. Gilbert Stead, M.A., in respect of the post held by him at Guy's Hospital Medical School.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Museum Demonstrations

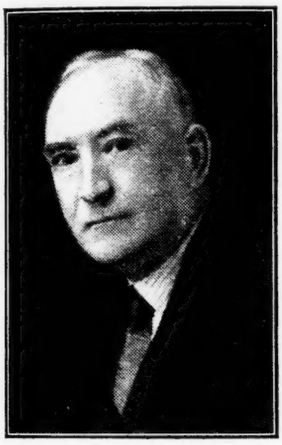
A course of museum demonstrations in the theatre of the College began on February 27, when Mr. R. St. Leger Brockman demonstrated some inflammatory lesions of the alimentary canal. To-day (Friday, March 3) Dr. A. J. E. Cave will speak on the anatomy of the salivary glands; on March 10 he will discuss the anatomy of the pharynx and oesophagus; and on March 17 the anatomy of the stomach. On March 6 and 13 Mr. L. W. Proger will show new specimens. All the demonstrations commence at 5 p.m., and are open to advanced students and medical practitioners.

Obituary

GRAHAM SCALES SIMPSON, F.R.C.S.

Consulting Surgeon, Royal Hospital, Sheffield; Late Professor of Surgery, University of Sheffield

Graham Simpson died so suddenly and so unexpectedly in the early morning of Sunday, February 19, that for days, until his funeral in fact, it passed the belief of his many friends. The day before he had appeared perfectly well and was his most cheerful self, telling of his recent enjoyment of the Hunterian Oration and banquet, carrying out one of his favourite operations—cystoscopy—and finally paying a cheerful evening visit to the patient. Awakened near 4 a.m. by acute dyspnoea, a doctor friend was soon at his side, but within an hour he had passed away, "mercifully free from pain." The tragedy is accentuated by the fact that during last summer he had been miraculously cured, by skilful surgery and *x*-ray therapy, of what is generally thought to be a mortal disease—an actinomycotic abscess of the lung. His friends had followed the long illness with intense anxiety, and great was their amazement and delight when he was restored to apparently perfect health and was able to return to his professional work. Moreover, only two years previously he had been incapacitated for months by accidental burns, in the operating theatre, of hands and forearms—a terribly painful experience which had at first seemed likely to end his career as an operating surgeon.



Born at Brighton in September, 1874, he entered Guy's Hospital Dental School in 1894 with a scholarship in Arts. He obtained the L.D.S., R.C.S.Eng. in 1896. Meanwhile he had been attracted to general surgery and had transferred to the medical school, becoming M.R.C.S., L.R.C.P. in 1899 and F.R.C.S.Eng. in 1901. After house-surgeoncies in the dental and surgical departments, he held the post of surgical registrar and tutor in his own school. In 1903 he became senior resident surgical officer to the Sheffield Royal Hospital, an institution which he faithfully served until 1934, when he retired under the age limit. Elected assistant surgeon in 1906, he was senior surgeon for more than twenty years. He was also consulting surgeon to the Barnsley Beckett Hospital, the Bakewell Cottage Hospital, and visiting surgeon to the Rampton State Institution. His voluntary hospital work was much disturbed during the war, when he organized the surgical block of the Wharncliffe War Hospital, of which he was chief surgical resident officer from May, 1915, to July, 1920, excluding twelve months spent as resident surgeon at Netley in 1916–17. He attained the rank of major R.A.M.C.

Lecturer to the University for many years, he held the chair of surgery for four years only before he was superannuated. His clinical teaching, vividly illustrated by his own experiences, was greatly appreciated by students and postgraduate practitioners.

As a consulting surgeon he was greatly and widely valued not only for his knowledge and sound judgment and for his skill and success as an operating surgeon but also for his kindly personality and human interest: the most exacting patient was sure to like him. In the operating theatre he was absolutely imperturbable; nothing untoward could upset him; and this, together with a studied evenness of temper, enabled him—philosopher that he was—to get the very best out of his staff and assistants at all times. In the most desperate case he stoutly refused to give up hope—an inspiring optimism which often astonished his colleagues but was doubtless reassuring to the patient.

Free from worldly ambition, he did not seek place or publicity, but he readily accepted and efficiently filled each post to which he was promoted or elected. He published comparatively little, and that chiefly careful records of exceptional cases. However, his reviews of treatises on urology—his most favoured branch of surgery—were much appreciated by readers of the *British Journal of Surgery*. Recently he had been proudly and happily engaged in preparing the Bradshaw Lecture. He had been a member of the British Medical Association for thirty-two years, and was honorary secretary of the Section of Surgery at the Sheffield Meeting in 1908. In 1925 he was elected to the Court of Examiners of the Royal College of Surgeons of England, an exacting responsibility which gave him great satisfaction and for which he was exceptionally well fitted. He had also acted as external examiner to the Universities of Liverpool, Bristol, Durham, and Birmingham. In 1929 he received the signal distinction of being elected to the Council of the Royal College of Surgeons. This privileged experience was thereafter one of his chief interests, and led to contacts and friendships which gave him the greatest pleasure. By no means least was his appreciation of the convivial and eximious (his own word) luncheons and dinners with which the Royal College refreshes its Court and Council. The banquets, and perhaps especially the Buckston Browne, were keenly looked forward to and enjoyed. Graham Simpson gathered the pleasures of life with discriminating taste. He enjoyed to the full the gatherings of the Moynihan Surgical Club, and most of all those which gratified his love of foreign travel. Essentially a man's man, he was capital company round the club fire or at the dinner table. Witty and humorous, learned and widely interested, he was sure to please his neighbours. In his younger days tennis attracted him, more recently golf, billiards at all times. His happiest occupation was reading; he read rapidly, with great concentration, and widely, though certainly not omnivorously, for he chose with care and purpose. Apart from professional literature, and particularly that pertaining to urology, the English and French classics in history and philosophy gave him most satisfaction. At one time he made a prolonged study of the history of religions. He would readily admit that the amazing patience with which he faced prolonged illness and convalescence was largely due to the opportunity it afforded him for reading. His qualities are clearly revealed in a letter from his assistant and, latterly, surgeon-in-ordinary (J. C. A.):

"There is much that I could say about his many virtues, but most of it is better known to you than to me. The feature that stood out was his amazing equanimity and self-control. In the thirteen years that I have known him I have never seen him lose his temper on a single occasion, and I have never heard him utter a cross word. One would have thought that he was born thus, but he has told me that he had to acquire this habit by conscious effort. If Professor Simpson had to ask his theatre sister for something that she had forgotten, his lack of reprimand was more effective than any reprimand would ever be. His charm of manner with colleagues and patients was a byword, and we juniors never

turned to him for advice in vain. One side of his personality was perhaps better known to me than to most people, and that was his reaction to his misfortunes of the last three years, during which period I came into such frequent contact with him in adversity. He never complained. I have never heard any recriminations. Even after his burns I have never heard him express annoyance that the accident had happened—he never worried or appeared to worry about might-have-beens. He was a perfect patient, he accepted advice without question, and left himself entirely under his medical advisers' control. When he went to London to be operated upon he really never expected to come back, but nothing appeared to be further from his mind than such a thought. I am sure that he never wished to be an invalid, and I know that he preferred to die rather than be unable to work and live as he had done in the past. He never liked to make a fuss about anything and he never liked anyone to make a fuss about him. He was a very humble man."

Graham Simpson married Gwyenneth, the eldest daughter of the late Dr. and Mrs. G. H. West-Jones of Eckington, and leaves two children—a son, now a lieutenant with H.M. Forces in Palestine, and a daughter, studying medicine at King's College Hospital; her father's delight when she gained a double-first in her Cambridge Tripos is a happy memory. Those who witnessed the devotion with which his wife tended him day and night during two long illnesses in the last three years, and the care with which she made his home his chief delight, will feel most sympathy for her in her sudden bereavement. Graham Simpson, one can feel quite certain, had said Amen to his friend Sampson Handley's last sentences in the Hunterian Oration to which he had listened so few days before he died.

M. H. P.

Dr. R. K. Robertson writes:

An abler pen than mine has described Graham Simpson's activities and many fine qualities. This short tribute is from a friend who has been closely associated with him and his work for twenty-five years. Simpson was a man who got through a tremendous amount of work without ever being in a hurry. He had the faculty of obtaining willing work and service from his students, house-surgeons, and nursing staff. He was a man of very even temper and great charm of manner. An optimist himself, he inspired confidence in others. As his anaesthetist for many years I had ample opportunity to know his skill in diagnosis and operative technique, and to appreciate his unfailing consideration for all associated with him in professional matters. To his personal courage and to the untiring devotion of his wife in the course of two serious and painful illnesses one can pay high tribute. His life was a happy one, and although he has left us at a comparatively early age it is good to know that the last few months, and especially the last week, of his life included some of the happiest days he knew. All who knew him will wish to say, "Good-bye, G. S."

ALEXANDER TROTTER, M.B., CH.B.

Consultant Surgeon, Royal Infirmary, Perth

The death occurred on February 21, at the age of 61, of Dr. Alexander Trotter, who for many years had been a well-known practitioner in Perth. Dr. Trotter was born in 1878, and was one of the fifth generation of a family of doctors. Having taken his medical course at Edinburgh University, he graduated M.B., Ch.B., with honours, in 1900. After a period of residence as house-surgeon at Perth Infirmary he became house-surgeon in the Birmingham and Midland Eye Hospital and in the Ear and Throat Hospital of the same city. There he made a special study of diseases of the eye and of the ear and throat, a branch of medicine which he continued when he returned to Perth in 1903 to assist his father in practice. From 1914 to 1936 he was senior surgeon to Perth Infirmary, and subsequently he was appointed medical superintendent and consultant surgeon to the institution. Outside his medical work Dr. Trotter took a great interest in archaeology, and had a fine collection; he was also a well-known philatelist. He had been a member of the British Medical Association since 1904, and on five occasions between 1904 and 1912 he acted as representative on the Representative Body, and from 1908 to 1910 served on the Central Council of the Association.

Dr. J. Duke Stewart (Dundee) writes: Alexander Trotter was one of the last of the Scottish surgeons whose work embraced the entire field of surgery. Ophthalmic, aural, and gynaecological cases were prominent upon his operating lists. To those of us who were privileged in past years to be his hospital residents the association is one of infinitely happy memories. Our amazement at the scope of his surgical attainments has but grown with the years; our experience of his kindly, genial, and intensely human personality will never be forgotten. To his wife, in whom we could not fail to see the constant source of inspiration behind his busy and happy life, we offer the very real sympathy of those who, in an association all too brief, acquired for him a true and lasting affection.

W. McLORINAN, L.R.C.P. & S.I.

Senior Physician, Mater Infirmorum Hospital, Belfast

The death of Dr. William McLorinan at his home in Antrim Road, Belfast, has left a gap that it will be hard to fill in the medical and social life of Northern Ireland. He began his medical training somewhat later than the average medical student, as he had first embarked on a business career. As a medical student he was quick to develop the keen clinical sense that dominated his career in after days. He was accounted a brilliant student, and won the gold medal for surgery and the silver medal for medicine at the Catholic University School of Medicine, Dublin. The year 1899 saw him qualified. He entered the Mater Misericordiae Hospital, Dublin, as a house-physician, where he earned the affection and respect of all who came in contact with him.

Settling in practice in Belfast he soon began to make a name for himself, and was appointed on the staff of the Mater Infirmorum Hospital. After a few years, however, the lure of the country called him, and 1901 found him settled in one of the loveliest spots in Ireland—Cushendall, in the centre of the nine Glens of Antrim. There he quickly became universally known and beloved by rich and poor. His gift of humour won its way into all hearts. For many years he remained the ideal physician of the Glens country, till family reasons caused him to leave the quiet of the countryside and begin life anew in Belfast. Here he was welcomed on all sides and was beloved by colleagues and patients alike. He took up his position again on the teaching staff of the Mater Infirmorum Hospital, a post which he held until his death, when he was senior physician to the hospital and a member of the Board of Management.

As a teacher Dr. McLorinan was an outstanding favourite with the students. His ready wit made even the driest subject palatable to his class. His quicksilver mind ensured an interest in his lectures from beginning to end; in fact his listeners had to be very wide awake in order not to miss some of the finer points of humour with which all his utterances were punctuated. As an examiner in

medicine in Queen's University, Belfast, he was kind and considerate, often going out of his way to reassure the nervous candidate and to help a lame dog over a stile. He joined the British Medical Association in 1903, was secretary of the Section of Hygiene at the Annual Meeting of 1909, and vice-president of the Section of Medicine in 1937. For many years he was a member of the Royal County Down Golf Club, which has its links at Newcastle in that county, and his prowess on the links was only equalled by his popularity in the club house. As a raconteur he had no equal in medical circles, and his popularity was ensured wherever he went. His personality was a captivating one. His vitality, good humour, innate kindliness, and buoyant spirits almost made sick people well, and certainly made them love him. To his wife deep sympathy goes out, left alone after so many years of devoted companionship. His place will not be an easy one to fill in our medical circles; we shall miss his jokes, his kind deeds, his charity, and, above all, his own good self.

J. B. M.

THE LATE G. J. JENKINS

Dr. Maurice Davidson writes:

As a professional colleague who has lived for nearly twenty years in close personal contact with Jenkins, I should like to add a few words of tribute to his remarkable personality. He was a shy man, fearful of publicity, and generally undemonstrative. Like most men of such temperament, he was deeply sensitive, and, as so often happens in these circumstances, he did not attract to himself a large circle of intimates, though he gained the respect of all with whom he was associated in his own particular branch of surgery. The value which other men set on his opinion was the measure not only of the wide experience which he could bring to bear upon his subject but also of their belief in his absolute integrity and their conviction that his advice was untainted by the slightest consideration of personal advantage. He had a supreme faith in the medical profession as a whole, and he demanded from it an ethical standard as high as that which characterized his own professional outlook. Such idealism was apt to make him in some ways unpractical, and occasionally difficult of approach, though he was never censorious, even of those who might well have deserved the most ruthless condemnation. Never did he speak harshly of his fellow men. Their virtues gave him pleasure; of their faults he would keep silent. To his patients he discoursed but little, and though at times he may have seemed to them somewhat distant, usually from an apprehension of revealing the sympathy he felt, they trusted him and felt confidence in the strength which he undoubtedly gave them. Of no man can it more justly be said that he was loyal to his calling and that he kept the Hippocratic Oath.

THE LATE RUTHERFORD MORISON

Dr. C. E. L. Burman (Pietermaritzburg) writes:

I have just read the tributes in the *Journal* to my late chief and teacher, Professor Rutherford Morison, and as one of his house-surgeons I would like to add my little share of esteem and appreciation of a great teacher. Since coming to this country in 1911 I do not think a month has passed that I have not received a letter from him discussing new problems in surgery, suggesting lines of thought and encouraging me to pay attention to detail, especially that of the history of the patient. He used to teach and insisted there was always something true and something of value even in the most garrulous and neurotic patients. I shall never forget the day in the operating theatre soon after becoming his house-surgeon when I had failed to obtain the consent of a patient with carcinoma of the stomach to operation. I was asked the reason why. "Sir, he refused operation." Openly, in front of all, he said: "Burman, you are the worst house-surgeon I have ever had, and a very poor sample of your father; you must trace that man and bring him to the clinic on Tuesday, and *I will* convince him that surgery is necessary to cure him." After much hunting in Gateshead I produced the patient at his clinic. Not only did the man refuse operation, but he told the Professor, just as a Geordie can, that it was his own stomach, and no one could persuade him to have the operation. The incident lapsed until the last day of my house-surgeoncy, when I was asked to choose my list. Professor Morison on those occasions acted as assistant. At the end of the list he turned round to the operating staff in the theatre and said: "I wish to withdraw some remarks I made to Mr. Burman when he came on as my house-surgeon, and the best I can say is, 'At least we have made a man of him.'" I still have the meerschaum pipe and testimonial he gave me on termination of my house-surgeoncy.

He never accepted "I had no time," and a full history of all cases had to be ready each day, which often entailed working into the early hours of the morning. All directions given had to be carried out to the letter, and his memory was phenomenal. What a man—what a teacher—what a friend! On all my trips home for post-graduate work I was never denied an interview, and latterly discussed farming conditions in South Africa and England. He has gone, but his teaching, his enthusiasm, his ambition to help those who love their work will always remain in those of us who were privileged to be one of his house-surgeons.

The death on December 16, 1938, at Hove, of Dr. ALEXANDER ROBERTSON, ended the suffering of a much-loved doctor. He was a native of Huntly in Aberdeenshire, and studied at the University of Aberdeen, where he graduated M.B., Ch.B. in 1908. Dr. Robertson practised in Yorkshire—first in Bradford, and later in Hornsea, where he was on the staff of the cottage hospital. But in 1931 his health gave way, and he became a complete invalid. He had been a member of the British Medical Association for the past twenty-two years.

Professor ARNE KISSMEYER'S death on February 3, at the age of 49, is a great loss to Danish medicine in general and dermatology in particular. Quite recently he had developed an anaemia which was at first traced to overwork. The disease progressed rapidly, proving refractory to all treatment and assuming more and more definitely a leukaemic character. He was born on February 15, 1889, and he devoted himself to postgraduate studies of a general character before taking up dermatology as his life's work. Most of his studies abroad were carried out in Switzerland and France. He succeeded to Professor Ehler's hospital appointment in 1932, and as recently as 1938 he was appointed professor of dermatology. Since his first publication in 1914 on the subject of a new syphilis reaction he was a prolific author as well as research worker. His last communication dealt with the treatment of gonorrhoea with M & B 693.

The late BIRGER RUNEBERG of Finland was professor of clinical surgery at the University of Helsingfors. He was born in 1875, the son of a physician and a professor of medicine. Urology was his specialty, and in 1920 he published an important work on the so-called aseptic renal pyurias, with special reference to infectious haematogenic nephritis and pyelonephritis. The object of this study, to which he had devoted many years, was to elucidate the problems of non-tuberculous, "sterile" suppurative conditions in the kidneys.

Dr. TAGE SJOGREN, a pioneer in the *x*-ray treatment of skin cancer and himself a victim of the *x* rays, died at Stockholm on January 10, aged 79.

Medico-Legal

INOCULATION DAMAGES CLAIM

Verdict for Defendants

Some three years ago the medical officer of health for County Waterford in the Irish Free State, Dr. Michael O'Farrell, approached the heads of a number of institutions with the object of immunizing as many children as possible against diphtheria. One of these was the Ring Irish College, a school devoted to the teaching of various subjects in the Irish language. Its principal is a man of great personality who is widely known in Ireland by the title *An Fear Mor*—"The Big Man." He arranged that thirty-eight boys and girls between 11 and 13 years of age should be immunized, and Dr. O'Farrell planned that forty-four boys of the Friary School in the neighbouring town of Dungarvan should be treated at the same time. The injections were given by the medical officer, Dr. D. T. McCarthy, at both schools on three dates. He used toxoid antitoxin floccules, or T.A.F., supplied by Messrs. Burroughs Wellcome and Co. The firm sent the material in two-ounce bottles through their agents in Dublin, Messrs. Fannin and Co., and Dr. O'Farrell stored the bottles in a safe. Two dozen bottles reached him on October 9, 1936, and four dozen bottles on November 4. Dr. McCarthy received from Dr. O'Farrell four bottles on October 27, two on November 4, and four on November 16, repaying him the 14s. 9d. a bottle which Dr. O'Farrell paid the firm. Dr. McCarthy on each of the three dates visited first the Friary School and then Ring College. On the third date he began the Ring injections with a fresh bottle, finished it, and used part of a second. Some weeks afterwards symptoms of disease were noticed in a number of the children who had been inoculated, and in particular four children who attended the school every day from Ring village became seriously ill. Their father was a teacher of Irish and other subjects at the college and was named Michael O Chionnfhaolaidh, in English usually spelt Kineally. One of the four children, a girl of 12 called Siobhan, died of generalized tuberculosis in April, 1937, and the three boys developed tuberculous abscesses on the arms and other lesions.

Case for the Plaintiffs Opened

Mr. Kineally sued Dr. McCarthy and the Wellcome Foundation, Ltd., for damages in respect of the death of the little girl; and his three sons, suing by their father, claimed damages for personal injuries and loss. (An account of the proceedings before the coroner appeared in the *Journal* for June 5 and 26, 1937, pp. 1182 and 1344; the present account is compiled from a full report in the *Irish Times*.) The action was heard in Dublin from February 6 to 23 before the President of the High Court, Mr. Justice Conor Maguire, and a jury. Mr. Kineally pleaded that the Wellcome Foundation, besides preparing T.A.F., also prepared tuberculin, and for that and other purposes grew and used tubercle bacilli; and that the preparation used for the injections was negligently prepared, manufactured, tested, or stored by the Foundation and negligently issued by them to Dr. O'Farrell containing tubercle bacilli. He also alleged that Dr. McCarthy had warranted the quality and fitness of the preparation used, but did not charge him with negligence. The Foundation denied by their defence negligence in the manufacture, testing, or storage of the preparation, and said that the preparation of tuberculin and the use of tubercle bacilli were carried on in premises isolated from those in which other products were manufactured. They denied that they gave any warranty of the T.A.F. preparation, or that they negligently issued it to Dr. O'Farrell, or that it contained any poisonous or harmful ingredients. They also said in the alternative that if any warranty was given the preparation they supplied was of merchantable quality and reasonably fit for the purpose for which it was alleged to have been used.

Mr. E. J. Kelly, K.C., who appeared with three other King's Counsel and a junior for Mr. Kineally and his sons, observed in his opening speech that the case was unique in Irish legal history and its importance touched every hospital, medical practitioner, and manufacturer of medical preparations. Mr. Kineally and his legal representatives, he said, were advised that Dr. McCarthy was not negligent and had done nothing to cause the outbreak of tuberculous disease. He would not charge the Wellcome Foundation with general negligence, but would suggest that the system of manufacture permitted sufficient negligence to allow a bottle containing a suspension of tubercle bacilli to slip through and find its way into a bottle of T.A.F. The Foundation had on its premises an animal experimental department and on the same premises there were live tubercle bacilli. In the same building, within a few yards of each other, were manufactured health-giving drugs and deadly poisons. The jury might think that such premises rendered themselves open to the commission of the error he suggested. The degree of care required of the firm must be greater than if it had been manufacturing either type of product separately. He pointed out that after T.A.F. was bottled it might not be labelled for about a fortnight, and suggested that this fact might lie close to the roots of the case. A preoccupied technician from another department might inadvertently lay down a bottle containing a suspension of tubercle bacilli and pick up an unlabelled bottle of T.A.F.

Evidence for the Plaintiffs

The first witness was An Fear Mor, the principal of Ring College. He said that Mr. Kineally's children lived about a mile away from the school. At the beginning of term in January, 1937, eleven children had not returned, six of them on account of sore arms. Two sons of his own had been inoculated and one had complained that he could not sleep on account of a sore hand. Complaints had been received about a number of other children. Cross-examined, he said that the children had not suffered from any trouble in the arms up to the beginning of the Christmas holidays. Dr. McCarthy, he added, had always given perfect satisfaction in his care of the children.

Mr. A. W. Slater, a pharmaceutical chemist employed by Messrs. Fannin, described the procedure of importing and distributing supplies of T.A.F. Occasionally, he said, the Customs opened the outside wrapper of a parcel to see the invoice, but his firm always rewrapped the parcel. Cross-examined, he said that according to the invoices the Waterford Board of Health had purchased the T.A.F. from the Foundation. He did not check the contents of the parcel, but had no reason to suspect that it was not delivered in the ordinary way. In twenty-nine years he had never known of a case in which the seals of a T.A.F. bottle had been tampered with in transit, or in which the Customs had opened a bottle. It would be obvious if the cap of a bottle were removed.

Mr. Kineally stated in evidence that before the inoculations the four children had been in very good health. During the Christmas holidays Siobhan, the daughter, complained of a sore arm with discharge, and the three boys complained of pains in the arm. She returned to school but soon came home, and after that she went to school for only one day. One of his sons had developed an abscess on the arm and was treated in a sanatorium for three months. Last Christmas he became very thin and was still under treatment. A second son suffered discharge from the arm and swollen glands, also from trouble on the shin bone. He spent six months in the district hospital and had two operations; he was still under treatment in a sanatorium and his health had deteriorated. The third son, though still in hospital, was improving. The place of discharge in each of the boys was on the right arm.

Dr. O'Farrell, the medical officer of health, said he had received from the Foundation 144 bottles of T.A.F. for use in his immunization scheme throughout the county. He did not receive T.A.F. from any other manufacturer. He supplied ten bottles to Dr. McCarthy. On a visit to Ring College with Dr. McCarthy in February, 1937, he saw eleven children with a small punched-out ulcer on the right arm, and a number of them had enlarged glands in the axilla. Cross-examined, he said that Dr. McCarthy's first four bottles were from the consignment ordered on October 6, but he was not sure from

which consignment the other six came. No one, so far as he knew, had interfered with the bottles. For the purpose of the county scheme he might have handled fifty or sixty bottles, and their seals had been intact. The incidence of tuberculosis in Waterford was about the average. He agreed that no disease, except perhaps lunacy, was more carefully hidden by the Irish people. He had not previously known any case of tuberculosis in Ring College.

Miss Mary White, a nurse in Dungarvan district hospital, described the manner in which all instruments and appliances were sterilized before they were given to doctors who required them for use outside. Cross-examined, she said that the drums containing the instruments and appliances did not fit into the autoclave, but were sterilized when required; the inside was usually washed with ether and lined with a sterile towel. Sister Oliver, the nurse in charge of the hospital, said she had never found a case of unsatisfactory sterilization there, and that the autoclave seemed quite efficient. When soiled dressings were returned they were well soaked, laundered, and sterilized before being used again. Returned syringes were washed and boiled for about twenty minutes.

Dr. McCarthy's Evidence

Dr. McCarthy said in his evidence that he had given the hospital staff instructions for the preparation of a drum containing the instruments and dressings he required for the inoculation. They had been brought to the college in the drum, and he had used no other instrument. The cartons and bottles of T.A.F. bore the appearance of having reached him intact. He had examined each bottle as he used it: each was labelled with the name "Burroughs Wellcome." As T.A.F. was expensive, waste was reduced to a minimum. On November 24 he had partly used two bottles at the Friary School and had taken them home with him in his bag and locked it in the press at his surgery. The puncture made by a needle in the rubber cap was so slight that danger of contamination was negligible. On January 7, 1937, Mrs. Kineally had brought Siobhan to the Dungarvan hospital. She had had a circular ulcer a little less than a quarter of an inch in diameter, from which came a purulent discharge. Two children of his own who were inoculated at the same time suffered no ill effects. On January 20 he was called to Ring College and found ten children with sore arms, including the four Kineally children. He called in the medical officer of health and three other doctors. Dr. William O'Donovan, bacteriologist at Cork University College, later reported that the patients were suffering from tuberculous infection. Witness had given Dr. Saunders, one of the three other practitioners, the bottle from which he had taken the injections. None of his patients had active tuberculosis while he was attending the children at Ring. There was one convalescent case of spinal tuberculosis in the hospital, but he had not used a syringe on that patient. He had never possessed a suspension of active *Bacillus tuberculosis*.

Cross-examined, Dr. McCarthy said he filled the syringe in the proper way, and the cap was never off the bottle. Before each operation he dipped the needle in alcohol, and he changed needle about six times. When he started a bottle he continued until it was finished. On November 24, the last day of the Ring College inoculation, he brought two untouched bottles. There were thirty-eight children to be inoculated with T.A.F. and two with another preparation. He inoculated twenty-five or twenty-six children from one bottle, which was finished, and the remaining children from another. He never restored any liquid from his syringe back into a bottle. When he had finished on that day he brought away the partly used bottle and never used it again until he handed it to Dr. Saunders on February 17 or 18. After each inoculation he touched the child's arm with alcohol, or iodine as well if there were bleeding, but did not put on a dressing. He had been pathologist at St. Bricin's Hospital, Dublin, in 1923 and 1924.

Further questioned, he said that he considered that the method of sterilizing dressings at the Dungarvan hospital was satisfactory. The real precaution was the sterile towel inside the drum. He was asked whether, if the dressing which surrounded the plunger of the syringe were infected with septic matter and came in contact with the plunger, the plunger might become infected. He replied that it was possible. Mr. W. O. B. Fitzgerald, K.C., for the Foundation, suggested that a speck of dried sputum or a small portion of tuberculous matter scarcely visible to the naked eye would infect a whole bottle of T.A.F. in the course of a series of inoculations, but the witness disagreed. He also considered it impossible that he could without negligence or knowledge have struck a cold tuberculous abscess in the arm of one of the children; there would have been other evidence of the existence of such an abscess. Assuming that he had a suspension of tubercle bacilli that presented the same appearance as T.A.F., it would not necessarily be powerful enough to kill a man or a child within a week. His theory was that he had received a bottle of live tubercle bacilli instead of T.A.F. He denied that what counsel called "this brilliant idea" had arisen out of a letter which he had received from Dr. O'Donovan. He had given twenty-six inoculations out of the first bottle and then opened a second. At the end fourteen doses were left, but the reason why only nine or ten were found in the bottle afterwards was that any serum remaining in the syringe was not returned to the bottle. The trouble was obviously not due to dirt infection during the inoculations. He agreed that possibly the children had other organisms in the wounds of their arms besides tubercle bacilli. He had become aware of the trouble during January, 1937, but did not inform the medical officer of health until February 7, because he did not then regard the condition as serious.

Miss Elizabeth Denn, a nurse who attended during the inoculations, said that she twice saw Dr. McCarthy sterilize his syringe between injections. At other times her attention was occupied by the children. So far as she could see, Dr. McCarthy took every possible care.

Further Medical Witnesses

Dr. Patrick Cagney of Cork said that he had examined two children at Christmas, 1936. Each had on the right arm, half-way between the shoulder and the elbow, a tender and swollen patch about the size of a walnut, containing pus. On January 23 he had opened the axillary gland of one of the children, and the pus had appeared tuberculous. This was the first suspicion he had had of tuberculosis.

Mr. Patrick Kiely, F.R.C.S., lecturer in operative surgery at University College, Cork, said he examined eleven children at Ring on February 25, and they were all suffering from primary tuberculous abscess and secondary tuberculosis of the axillary glands. He had formed the opinion that the material injected into their arms had contained a strong and uniformly disseminated suspension of live and virulent tubercle bacilli. If a dirty syringe had been employed it would have been impossible to avoid primary septic infection. The hypothesis that some sputum might have got into the syringe was extremely unlikely; the sticky material would hardly pass through a fine needle and would be most unlikely to become so evenly distributed through the entire bottle as to produce so many severely infected cases. Infection could not have come from a cold abscess: that disease was very rare, and, moreover, the abscess would be most unlikely to escape detection or to contain tubercle bacilli, and contamination would be wiped off by the tissues or the rubber cap of the bottle. He had never known *B. tuberculosis* to be introduced by a syringe. He approved the method of inoculation used at Ring. Tuberculosis was prevalent in the South of Ireland. Cross-examined, he said he could not conceive that an invisible drop of moisture containing tubercle bacilli could affect a great number of human beings. The absence of evidence of septic infection in the arms of these children was highly significant of the absence of infection in the technique.

Mr. Henry MacAuley, F.R.C.S.I., a Dublin surgeon, said that the symptoms in the eleven patients he saw at Ring on February 28 were surprisingly similar: they suffered from tuberculosis. He described the condition of the three sons of Mr. Kineally, and concluded that the source of the infection was the injection of tubercle bacilli at Ring. He could not find any rational basis for attributing the results to the technique; this he considered to show a high standard of routine and method and a quite unusual thoroughness.

Assuming the first child inoculated on the third day to have had a cold abscess, infection could not have been conveyed by the needle to a good bottle of T.A.F. and communicated to each of the other children. Sputum would contain mixed infection, and so would probably cause a septic lesion in some if not all the cases; it would also be carried over from bottle to bottle. A fleck of sputum introduced into a syringe could not infect twenty-five cases. The sterilization of the drum and of the instruments must, to judge from the results, have been adequate. In his opinion the children had been infected by tuberculosis from germs uniformly disseminated through one bottle before the bottle was used by the doctor. B.C.G. (*Bacillus Calmette-Guérin*) could have produced similar symptoms: it contained living but non-poisonous germs. He did not suggest that any child had been inoculated with B.C.G.; he was suggesting parallelism in appearance. He agreed that in six days a contaminated bottle of T.A.F. would clear itself. In his opinion Dr. McCarthy's methods of inoculation departed from the universal practice in being extraordinarily careful. He thought that, considering the children's age, they should have had a Schick test before inoculation. It was regrettable that in these cases no temperature records were available for the dates before April 29.

Dr. William O'Donovan gave evidence that he had made tests on material collected from four of the Ring children in February. In one of the specimens he had found tubercle bacilli in large enough numbers to enable him to grow cultures. Two guinea-pigs which he inoculated both became infected with tuberculosis. The lungs, liver, spleen, kidneys, brain, and lymphatic glands of the dead girl showed tuberculous infection. This could have arisen from an injection of live active tubercle bacilli. He had examined a portion of the contents of a bottle purporting to be the second bottle of T.A.F. used at Ring on November 24, 1936; he had found no evidence of infecting organisms of any kind in it. Mr. Michael Binchy, K.C., for Dr. McCarthy, questioned Dr. O'Donovan about a letter he had written to Dr. McCarthy on February 26. The witness said he had meant that the infection was of such a type that he could not conceive it arising from any carelessness on the part of Dr. McCarthy. He had never altered his conclusion that at the moment of inoculation a bottle purporting to be a bottle of T.A.F. had contained live tubercle bacilli. In cross-examination Dr. O'Donovan said it was possible to fail to recover the organisms in a case of accepted infection. He had got definite infection, in the sense of producing the living organism, only in the second case at Ring. It was not unusual in laboratories for specimens of different character to be kept quite convenient to one another. A suspension of live tubercle bacilli would be treated with extreme care in any laboratory. In three out of the four specimens there was not enough evidence for a histological diagnosis of tuberculous infection. Re-examined, however, he said he had no doubt that the remaining three samples contained *B. tuberculosis*.

Dr. J. J. Dennehey, the county tuberculosis officer, said that since 1912 he had never had a case of tuberculosis from Ring College.

State Pathologist's Evidence

Dr. John McGrath, State pathologist, said he had examined a specimen taken from one of the infected children who had been inoculated on November 24—Patricia Riordan. It had contained many tubercle bacilli but no other organisms: it was a purely tuberculous pus. He had injected cultures into two guinea-pigs, which had died; they had not shown very extensive tuberculosis, but cultures made from their livers had shown well-marked growth. If a suspension of tubercle bacilli were sufficiently concentrated it would look much the same as T.A.F. He produced a bottle of T.A.F. and a bottle of suspension and remarked that he did not think that on ordinary observation one would be distinguished from the other, though the suspension was slightly granular. He had concluded that the bacilli which he had found were human in type and of a relatively weak strain. The effect of the injections on the children was consistent with the use of a bottle purporting to contain T.A.F. and really containing a relatively weak strain of *B. tuberculosis*.

Asked whether the outbreak could have been due to defective sterilization, Dr. McGrath replied that *B. tuberculosis* was easily killed by heat but relatively resistant to antiseptics. From the evidence he believed that the temperatures of the dressings and syringe had been raised sufficiently and for a long enough time to kill tubercle bacilli. If dirty material had remained from a previous operation on the swabs or syringe they would have contained sore-forming organisms, but there had been no sores of that kind on the children. He concluded that if the sore-forming organisms had been killed the tubercle bacilli must have been killed, also that tubercle bacilli could not have survived the sterilization that had been described. He did not think that the events could be explained by the sputum theory. Some person would have had to be present who was badly infected with tuberculosis and was actually coughing out bacilli. The sputum would then have to fall on the syringe or needle. If that happened it would affect the first child particularly, the next few children less, and the remainder not at all. To infect the children equally the sputum would need to be disseminated equally in the fluid and would have to have been introduced into the bottle at the beginning of the operation. For the infection to be produced by a cold abscess one of the children must have had such an abscess on the arm; the child would then have to be a sick child; in any event twenty-five children would not be infected equally from such a source. He could not see any escape from the conclusion that the bottles supplied to the doctor must have contained *B. tuberculosis*.

Continuing his evidence, Dr. McGrath said he visited the Wellcome Foundation laboratories on April 22, and was received by the staff with kindness and courtesy. He was shown where T.A.F. was prepared in bulk. The ground floor of No. 62 building contained guinea-pigs and rabbits which, he was informed, were used for experimental work on tuberculosis. In another part of the house was a bacteriological laboratory. The suspension of *B. tuberculosis* used to infect the animals was prepared in the upper floor of another house, the ground floor of which contained animal rooms. Bulk supplies of T.A.F. were kept for fourteen days in a room while samples were tested; they were then taken to a cold room, on the shelves of which were bottles containing other products, both commercial and experimental. When T.A.F. was required it was taken in bulk from the cold room to the filling room and filled into smaller bottles by a team of girls. In this room, apparently, many of the various other products of the laboratories were also filled.

Dr. McGrath was asked his opinion on how the children had contracted the disease. He replied that, judging by the uniformity of the disease in the twenty-four or twenty-five children, it had been caused by a uniform suspension uniformly present throughout a 25 c.cm. bottle which was used as T.A.F. by Dr. McCarthy. It was possible that such a bottle could have been issued by the Foundation in mistake for a bottle of T.A.F. Elaborating this opinion, he said it seemed possible that a worker could have filled a 25 c.cm. bottle with a suspension of tubercle bacilli for use on animals. When he had seen the packing room the doors had been open: apparently persons could go in and out, though they might be punished for it. The precautions exercised over the filling room did not appear to him to be exercised over the packing room. It seemed to him possible for a worker in the experimental department which used *B. tuberculosis* to have filled a bottle, conveyed it accidentally to the packing room, and there, by mischance or lack of memory, laid it down among the other bottles which looked so much like it. It would then go into the mill, which would label it, pack it, and send it out as T.A.F.

In answer to Mr. Macguire (for Dr. McCarthy) Dr. McGrath said he had examined a specimen from one of the children which contained only *B. tuberculosis*, from which he had infected guinea-pigs. In building No. 62 he had seen a large number of infected animals, but no dead ones. This was immediately beneath the room where T.A.F. was being prepared in bulk.

In answer to Mr. Lavery, K.C. (for the Foundation), Dr. McGrath said he had many times made suspensions of *B. tuberculosis*; he had once lost a bottle of suspension and had not

rested until he had traced it. He hoped he would never lose a bottle which remained unaccounted for. It would be possible for him to prepare a suspension in a bottle, lay it down somewhere, and forget he had done it; mischances might occur to anybody. Such mischances had occurred all over the world and caused disaster, and could occur unless there was an absolutely watertight system. He thought it highly improbable that a bottle of T.A.F. could have become infected at the laboratory and afterwards have infected the Ring children. At the necropsy on the girl Siobhan a very careful examination would have revealed the primary focus. There must be a number of undetected cases of tuberculosis of various kinds in the rural parts of Ireland. He had known cases where the death of a young child was the first indication of tuberculosis in an elderly member of the family who had been believed to be suffering from bronchitis. If tuberculin were injected into the arms of twenty-five children in any considerable quantity in the known way, a severe tuberculin reaction would occur in about 20 per cent. within a few hours.

He agreed that the sterilization of instruments, dressings, materials, and the person of the operator was of prime importance in such operations. If air were allowed to remain in the autoclave at a certain stage there would be insufficient sterilization, and it would not kill sore-forming organisms. He also agreed that to open the drum, as Dr. McCarthy was said to have done, after he had washed his hands would possibly lead to contamination of his hands from the outside of the drum. The proper way to sterilize the drum would have been to place it in the autoclave. Neither the rinsing nor the swabbing of the interior of the drum with ether was satisfactory for sterilizing it. There was a possibility that if the interior of the drum were infected moist dressings would absorb the infection. *B. tuberculosis* was more resistant to some antiseptics than others, and was more resistant to alcohol or ether than were sore-forming organisms. He agreed that it was necessary to consider the possibility that Dr. McCarthy's syringe was grossly contaminated, or had not been sterilized at all, or that a mistake might have been made in hospital.

He would be surprised if a laboratory sent out a culture of live tubercle bacilli in suspension by post, but not if a culture were handed out by one bacteriologist to another. When a laboratory sent out cultures of tubercle bacilli they were in a solid medium instead of in suspension. He did not suggest that the different preparations made up in the packing room or cold room at the Foundation laboratories included any living cultures. If any infection or substitution had taken place it had not done so while the T.A.F. was in bulk. When settled in the bottle T.A.F. could be distinguished from suspension of *B. tuberculosis* by an experienced person. Dr. McGrath agreed that technicians of high qualification were suitable for the work of the laboratories if their work was suitably checked by qualified medical men. He thought that, from the extensive space and the amount of research work to be done by the medical men at the Foundation, there were not enough medical men there.

Asked whether, if a substitution occurred and guinea-pigs were injected with T.A.F. instead of suspension of *B. tuberculosis*, there would not be an immediate investigation, the witness replied that injections sometimes failed.

Conclusion of Plaintiffs' Case

Dr. W. P. O'Callaghan, bacteriologist, said that he considered the sterilization at the hospital sufficient to kill *B. tuberculosis*, and that the possibility of contamination from the syringe was very remote. He regarded the sputum theory as very unlikely for several reasons. A cold abscess was in his opinion also a very unlikely source. The most probable source was a uniform suspension of *B. tuberculosis* from the bottle. The suggestion that a worker in the Wellcome laboratory should leave a bottle of suspension in the T.A.F. preparation room was a very remote possibility, but equal in value with the suggestion that the syringe became infected.

Dr. William Boxwell, President of the Royal College of Physicians of Ireland, also rejected the cold abscess theory and the sputum theory. He knew of three previous occasions in which prophylactic material had produced very serious illness in children.

Dr. Dorothy Price, consulting physician to the Royal National Hospital for Consumption, said that the figures for the incidence of tuberculosis among children under 14 in Ireland were much lower than those reported in any other European country.

Dr. McCarthy, recalled, said that in his recollection he did not open the drum after his hands had been sterilized.

Dr. McCarthy—No Contract of Sale

This closed the case for the plaintiffs. Mr. Maguire then applied for a direction in Dr. McCarthy's favour, dismissing him from the suit with costs, on the ground that there was no evidence of a contract of sale between him and the plaintiffs, nor any evidence that he warranted the quality or fitness of the T.A.F. Mr. Kelly submitted, for the plaintiffs, that the contract to give professional services included a contract to supply proper material, and a warranty was implied under the Sale of Goods Act, 1893. The President agreed that no evidence of a contract of sale had been given and dismissed the action against Dr. McCarthy with costs.

Mr. Fitzgerald submitted that there was no evidence against the Wellcome Foundation to go to the jury to support the charge of negligence, or the allegation that the bottle of T.A.F. contained any harmful matter; that the plaintiffs had merely left the court a series of possible inferences from which the conclusion might possibly be drawn that the bottle might have contained a suspension of tubercle bacilli which had been substituted for a bottle of T.A.F. in the laboratories. The President intimated that he would let the case go to the jury.

The Case for the Wellcome Foundation

Mr. Fitzgerald said, in opening the case for the Foundation, that the firm had been founded in 1924 by the late Sir Henry Wellcome and that all its profits went back to medical and scientific research. He thought that the solution of the case would turn, not on abstruse scientific speculations, but on plain questions of fact. The plaintiffs had deliberately elected to ignore any possibility of mistake by anybody but the Foundation. They had thrown the mantle of their protection round Dr. McCarthy and had only sued him because they alleged he delivered a bottle of T.A.F. To bring him into the case in that form was a misconception in law, and it was a misconception in justice that he should not have been charged with negligence on the same basis as the Foundation. On the other hand, no part of the Foundation's case depended on convicting Dr. McCarthy of negligence. He was really trying to acquit Dr. McCarthy of a very serious charge, because if he had used a bottle of suspension of *B. tuberculosis* and had not recognized that it was not T.A.F. he would have been guilty of serious neglect. If the bottle had really contained a suspension of bacilli the doctor would inevitably have recognized it.

He would attempt to show that Dr. McCarthy's evidence was inaccurate, and that his whole conduct over the injections was as happy-go-lucky and as careless as one could well imagine. He would ask the jury to discard Dr. McCarthy's evidence that he had opened a fresh bottle at Ring. The "golden key that would unlock the door of truth" was that the contents of the last bottle used at Ring on November 24 had been sterile and uncontaminated. It had contained at most 10 c.cm. If the doctor had begun with a new bottle he should have had at least 14 c.cm. over. When he opened the bottle he had twelve children to inoculate: 12 c.cm. from 26 c.cm. left 14 c.cm. Mr. Fitzgerald's suggestion was that the doctor came from the Friary school with a bottle which he had opened and out of which he had used four doses, and that bottle did no harm. He proposed to show that the injection of a suspension of *B. tuberculosis* would have produced far more serious results in a far shorter time. He also suggested that the sterilization at the hospital was most unsatisfactory. The charge of negligence had been made quite recklessly and without a particle of real evidence to support it.

Procedure at the Wellcome Laboratories

Dr. H. J. Parish, principal bacteriologist at the Wellcome Laboratories, said he had been making T.A.F. since 1927 and had been the first person to inject it. T.A.F. was prepared in building No. 62 and taken in 4-litre bottles to building No. 5. In neither of these buildings were there any living organisms in suspension. The T.A.F. was then tested elaborately to ascertain that it contained no harmful organisms or toxins, that it was sufficiently powerful, and that it contained enough phenol. It was then put in cold storage for over a year. The filling room where the small bottles were filled from bulk to go out to the public was regarded as a "sacred" room. The small bottles when filled were further tested. Suspensions of *B. tuberculosis* were made in the laboratory of building No. 61 or on the ground floor of No. 62, where the animals were kept, but there was no connexion between the ground floor of No. 62 and the top of the building. An inexperienced worker looking casually at a bottle of suspension might confuse its appearance with T.A.F., but anyone who was familiar with T.A.F. would notice a distinct difference. Moreover, suspension was put into 50-c.cm. bottles, never into 25-c.cm. bottles. If 1 c.cm. of suspension were injected into a normal child there would be an immediate reaction, and he would expect the child to die within a month. The older the child the greater the immediate reaction, and if the child were tuberculin-positive it would be seriously ill. Tubercle suspensions were never sold or given to individual medical men. When they were used for injecting into guinea-pigs any remainder was immediately destroyed and all containers were immediately disinfected in boiling lysol. There was no possibility of a worker bringing a bottle of suspension into the building where T.A.F. was kept. To carry a bottle in the hands or pockets would be suicidal and insane. Messengers were never sent with bottles of tubercle suspension.

Dr. Parish produced record cards showing what had happened to the whole of the two batches of T.A.F., containing about thirteen thousand doses, from which the material used in the Ring cases was said to have been taken. No complaint of toxicity had been made from any other source. The risk of contamination of the small bottles of T.A.F. by workers' breath was negligible, as only two seconds elapsed between the filling and the capping. The staff were instructed not to work if they had colds. He said he had seen some of the children and agreed that their lesions were tuberculous. The sterilizers at the hospital should have been quite efficient if properly worked. He had tested part of the contents of the unfinished bottle of T.A.F. left over from the Ring injections, and eight bottles from the same batch: they had all been sterile and harmless to guinea-pigs. Some of the contents had been intentionally infected with tubercle bacilli, which had been killed rapidly by the carbolic acid. He had contaminated the plunger of a syringe with a minute drop of infected sputum, and had found that the sputum would be carried into the bottle and infect the entire contents, so that all guinea-pigs injected with it developed tuberculosis, even if they were inoculated with a sterile syringe. He was quite satisfied that the infection at Ring could have been caused by contamination of the bottle by a syringe. Cold abscesses might contain enormous numbers of *B. tuberculosis*, and if a doctor was unfortunate enough to insert his needle into a cold abscess that would be sufficient to contaminate heavily a 25-cm. bottle of T.A.F. A doctor might do this without being negligent.

If a bottle of suspension had been substituted in the laboratory for a bottle of T.A.F. the worker who came to experiment on guinea-pigs with the T.A.F. would notice that the amount in the bottle was very different from the amount of suspension he had prepared; he would not have sufficient material and would immediately realize his error and take steps. There would be wide discussion in the laboratory as to what on earth had happened, and the most intensive investigation would be made. Nothing of the kind had ever happened yet, and he did not see how it could. The Foundation had been very glad indeed that someone from Ireland was coming over to inspect the laboratories. They had known at all times that Dr. McGrath came as a witness for the plaintiffs. He was shown everything he asked to see, and he had put no questions pointing to the possibility of a substitution. His "damnable accusation" had been a bombshell. It would be criminally wicked to allow culture to enter a building containing products for human use. To put a bottle of dangerous suspension into one's pocket would be a bacteriological sin of the first magnitude.

Cross-examined, Dr. Parish said he based his view against substitution on the theory that no trained bacteriologist would use a rubber cap with *B. tuberculosis* suspension. The chance of contamination by a fleck of sputum on the needle was one in a million, and the risks of this accident, and of the presence of a cold abscess in an apparently healthy child, were negligible. Until he had had to explain the disaster neither of those ideas had occurred to him as a possible risk of an ordinary inoculation. The infected children had not shown a striking similarity, except in one or two respects. Differences in their condition might be due to difference in resistance, or dosage, or both.

He was asked by counsel whether a consignment of T.A.F. sent to Ireland since the Ring disaster had been found by the public health authorities there to contain acid-fast organisms resembling *B. tuberculosis* and had been returned. He replied that the material had been returned and tested and found free of infection. The supposed organisms had been present in very small numbers; he denied they were acid-fast organisms but believed that they resembled them. The presence of phenol showed that *B. tuberculosis* could not have been present. This batch of T.A.F. was withdrawn from Ireland but used up in England. (Laughter.) He had not the remotest idea how the infection occurred at Ring. In the laboratory it would be impossible to test each individual bottle, but samples were taken from the bottles. If these were not sterile the tests were repeated on twice the number of samples, and if the result again showed that the material was not sterile the batch was condemned. Phenol was introduced in bulk. T.A.F. had been rejected in bulk for being non-sterile and for failing to immunize guinea-pigs satisfactorily. The tests were absolutely certain for living bacilli and gave a safe assumption for dead bacilli. There were infected patients at the Dungarvan County Home, and the dressings with which the syringe was in contact might have been used at some stage in that home.

Sterilization Procedure at Ring

Dr. John Blacklock, professor of pathology at Glasgow University, said he had tested T.A.F. from the Foundation and from the batch used at Ring, and some purchased by him in Glasgow unknown to the firm; all the batches had been free from infection. The T.A.F. killed a suspension of *B. tuberculosis* within six days. The fact that the Ring children had shown no reaction for about a month after inoculation was not consistent with their having received a suspension of live *B. tuberculosis* resembling T.A.F. Experiment had shown that, using a syringe as Dr. McCarthy had used it, organisms in the needle could contaminate a whole bottle of T.A.F. He had visited the Foundation laboratories unexpectedly on a Sunday and had been impressed by them as the tidiest laboratories he had ever seen at a week-end. On a second and longer inspection he had found that the arrangements corresponded to those he had seen in other large laboratories in Britain and abroad. In many respects the Wellcome laboratories were a great deal better than others. A cold abscess could form on the arm of a patient with bone tuberculosis.

Professor Blacklock thought it very likely that the Ring trouble had been caused by defective sterilization. From the nurse's description of the use of the autoclave all the air was not expelled and the temperature would not rise to 100° C. Dry heat at a temperature of 100° C. was required for at least an hour to kill *B. tuberculosis* in sputum. Even at the end of an hour he had found some tubercle bacilli still alive. He would not approve of the practice of re-using soiled dressings, as was stated to have been done at Dungarvan Hospital. If defective sterilization was added to that practice there was every possibility of landing in trouble like that of the present case. Cleaning the drum with ether was not satisfactory, as ether

was not a good antiseptic. There was also danger that a sterile towel lining the drum might slip or might not be completely dry. Referring to a statement by Dr. McCarthy that he put on a white coat which he took from a bag, Professor Blacklock said he did not know whether that coat was sterilized or not, or whether the doctor had used it in other places where he had tuberculous patients. When the syringe was being assembled before the inoculation the plunger might have slipped against Dr. McCarthy's coat and become contaminated. If Dr. McCarthy opened the drum after he had cleansed his hands they would have been contaminated at once.

In cross-examination Professor Blacklock said that if a doctor received a bottle of fluid which, purporting to be diphtheria prophylactic, was a clear liquid it would certainly not be reasonable for him to inject it into a child. If the fluid were clear or only slightly milky it should be returned. If soiled dressings were boiled in a steam laundry for fifteen minutes *B. tuberculosis* would be killed. If they were soaked overnight before boiling the bacilli would be killed in five minutes. Re-examined, he said that he had examined building No. 5, and a bottle containing clear instead of cloudy mixture could not possibly have passed undetected.

Professor J. W. Bigger of Dublin said that he had been to the laboratories in May, 1937, making a detailed and critical visit but keeping an absolutely open mind. He had never visited a laboratory in which cultures of tubercle bacilli were kept so far away from the filling and packing departments. If bacteriological work was carried out by careful and competent people there was no danger. A substitution of bottles could not have occurred at the laboratories. The staff was highly qualified and extraordinarily competent and expert in their highly specialized work. He was exceedingly favourably impressed with the record system, and the abstraction or addition of a bottle would be bound to be revealed. He had been informed that the ordinary routine was that the making of a suspension, the injection of the animals, and the disinfection in boiling lysol of the residue of the suspension were conducted as one operation. Residues were not left over. Even when a suspension was really well made it was somewhat granular. When the bottles had stood for a time there was a great difference: the T.A.F. formed a rather bulky floccular layer, and the *B. tuberculosis* a dense, even, compact layer. No one who had looked at the two a couple of times could possibly confuse them. Every bacteriologist had a great respect for *B. tuberculosis*: he would rather carry a bomb or a bottle of vitriol in his pocket than a bottle of living tubercle suspension.

Professor Bigger summarized the Bundenberg disaster that had occurred in Queensland in January, 1928, when twelve children had died after injection with a diphtheria prophylactic containing no antiseptic. It had been perfectly safe when it left the laboratory, but a Royal Commission had found that contamination had been introduced into the bottle by the doctor, who had not taken all the proper precautions. He said that no one could honestly hold that the so-called sterilization in the hospital was adequate or sufficient for any surgical or medical purpose, including injection. He intended to go on using T.A.F., and if he thought there was the slightest possibility of danger in it he would immediately transfer to the product of another maker. If a substitution had taken place at the laboratory he would never use its products again.

Miss Edith Till, supervisor of the filling department, said that no one was allowed to enter the filling room except its staff, and it was kept locked when not in use. She supervised operations through a glass panel in an adjoining room. Each consignment of T.A.F. in bulk came through a hatch accompanied by a series of record slips, tray labels, and cards, which were checked before and after filling. She had complete records to enable her to give any details required of any process. Records of the two consignments in question were complete and accurate, and she had discharged her own responsibility accurately in respect to both batches. Cross-examined, she said she dealt with a hundred or more products as well as T.A.F., and would not recognize a suspension of tubercle bacilli. She was certain that no one had access to the filling room except the fillers.

Miss Gladys Boorman, head of the packing department, said that trays of bottles of T.A.F. were kept on shelves in the counting room until they were ready for labelling. No one except her staff of checkers, all women, ever went into the counting room, and it could only be entered through her room. The bottles were counted and checked three times in her department before they were finally packed, and on each occasion they were looked at, and if there were any defect the tray would be sent back to the inspection room and the process would have to be started afresh. There was a notice on the door of her room: "Checkers Only." In cross-examination she said that the door of the preparation room and the door between that room and the counting room were unlocked. The bottles might be in the counting room twenty-four hours before they were counted.

Dr. J. C. Saunders, medical officer of health for Cork City, said that so far as he knew a letter from him had been the first intimation given to the Foundation of the disaster. On his visit to Dungarvan Dr. McCarthy had given him a bottle containing T.A.F. and told him that was the only bottle he had left over. He had handed that bottle to Dr. O'Donovan. He had visited the Foundation laboratories unexpectedly and found their organization and methods absolutely first class. He had seen two bottles of T.A.F. rejected, one for containing a tiny particle of glass and the other for containing a hair.

Dr. C. J. McSweeney, medical superintendent of Cork Street Fever Hospital, Dublin, thought that the method of sterilization at the hospital was very unsafe. If, he said, one went in for the "thoroughly dangerous procedure" of using soiled dressings a second time, the necessity for the efficient use of the autoclave was increased. He would expect that, if children received a huge dose of *B. tuberculosis*, a number of them would have a severe tuberculin reaction and half of them would die fairly quickly. He intended to go on using T.A.F. Cross-examined, he said that slightly soiled dressings, if used again, were just as dangerous as badly contaminated dressings. A very minute portion of infectious matter, if it came in contact with the syringe, would be quite sufficient to explain the accident. Dr. McCarthy's technique in immunization was quite beyond reproach.

Dr. R. A. O'Brien, director of the Foundation laboratories since 1914, said that the Foundation adopted all new and promising methods introduced by similar institutions. He thought its laboratories would compare with any that he had visited. He did not agree that a number of complaints had been received in connexion with T.A.F., but he had a very large correspondence with doctors who wrote when they noticed anything that they considered unusual or interesting.

Dr. Robert Collis, an expert in child tuberculosis, expressed the opinion that the children at Ring were not given a massive dose of live *B. tuberculosis* but an infinitesimally small dose. There were no immediate reactions, and only one child died six months after the inoculation. If a huge dose had been given, half the children would have died. The organism, moreover, was not very virulent. The infection might have been caused by a breakdown in sterilization. All doctors had at some time seen a wound treated with every sterile precaution go wrong, or an injection go septic. The bacillus might in the present case have entered entirely by accident because the syringe had accidentally struck a focus in a child's arm or had been contaminated in some other unusual way. There was one chance in a million of tuberculosis being introduced through inoculation: no medical instance had been recorded since the introduction of the syringe fifty years ago.

Verdict and Judgment for the Foundation

Mr. Fitzgerald again asked for a direction dismissing the action, but the President directed that the case should go to the jury. After counsel had addressed the court, his Lordship summed up. He reminded the jury that if the evidence left them in doubt between the two possibilities, that the infection came in the bottle from the laboratories or that the bottle was infected in Dr. McCarthy's hands, then the action must fail. Consideration of the effect that a verdict of negligence would have on the Wellcome Foundation added

tremendously to the jury's responsibility. He doubted if it were necessary to ask a jury of intelligent Dublin men to put out of their minds any prejudice as between Irish plaintiffs and English defendants. From his experience of Dublin juries he thought they were quite capable of adjudicating with absolute impartiality between the citizens of their State and parties coming from other countries. The inference which they were asked to draw from the alleged evenness of the infection was based on opinion and on experiments, which necessarily suffered from the impossibility of reproducing the original circumstances.

The question for the jury was:

> " Did the defendants, the Wellcome Foundation Ltd., negligently issue a bottle containing live tubercle bacilli in suspension for use instead of a bottle of T.A.F.?"

The jury, after an absence of about twenty-five minutes, answered No, and the President accordingly gave judgment for the Wellcome Foundation with costs.

Medical Notes in Parliament

In the House of Lords on February 28 the Royal Assent was given to the Custody of Children (Scotland) Act and to other measures.

The House of Commons this week discussed the recognition of the Nationalist Government in Spain by the British Government.

Estimates for the Navy, Army, and Air Force in 1939–40 have been presented to Parliament. The last two will probably be debated in the House of Commons next week.

The Standing Committee of the House of Commons which is considering the Criminal Justice Bill discussed on February 28 the provisions for medical and mental treatment of probationers and decided that this should be under the Ministry of Health. Specific reference to the Board of Control was proposed but negatived.

The report and third reading of the Cancer Bill, which were set down for March 1 in the House of Commons, were postponed because the business of the week was rearranged to allow a debate on the recognition of General Franco's Government by Great Britain.

Scottish Board of Control

The Standing Committee on Scottish Bills began consideration on February 16 of the Reorganization of Offices (Scotland) Bill. On Clause 1 (Transfer of Scottish Departments' functions to Secretary of State) Mrs. HARDIE moved an amendment to abolish the Scottish Board of Control and transfer its functions to the Department of Health for Scotland. She said the Committee on Scottish Health Services, which reported in 1936, advocated this change, and local authorities and medical officers of health in Scotland supported it.

Mr. COLVILLE (Secretary of State for Scotland) said that under the Bill the functions of administrative departments generally would be vested in the Secretary of State, and careful consideration had been given whether an exception should be made in the case of the Board of Control. The Committee on Scottish Administration had recommended that it should, and the Government had come down on that side. In 1926 the Royal Commission on Lunacy and Mental Disorder recommended against the merging of the English Board of Control with the English Ministry of Health. It was possible for the English Commission to take into account the relation of lunacy to health generally. In 1936 a Committee on Scottish Health Services recommended that the administrative functions of the Board of Control should be transferred to the Department of Health and that the functions relating to the liberty of the subject should be transferred to the sheriff. In 1937 the Committee on Scottish Administration, presided over by Sir John Gilmour, recommended that the Board of Control should remain and should be strengthened for the discharge of its responsibilities, but should be closely associated with the Department of Health. This closer association would be secured by the appointment of an assistant secretary of the Department of Health as chairman, unpaid, and the staff of the Board would be regarded as part of the staff of the Department of Health. There were two medical commissioners at present, and they would remain. There would be a paid legal commissioner. Two lay members representing the general public would remain and would be unpaid, and, in addition, there would be a Scottish Education Department representative. This reorganization ensured that both mental and physical considerations would be taken into account. The Secretary of State would continue to nominate the two lay members.

Mr. WESTWOOD did not admit that the liberty of the subject, so far as many of the poor inmates of asylums were concerned, was properly looked after by the Board of Control. The Cathcart Committee, which was set up in June, 1933, and on which he served, included six outstanding medical men and spent weeks on the treatment of mental disease and the administration under which it ought to be carried out. Its report stated that the evidence overwhelmingly pointed to the need for linking measures for diagnosis and treatment of mental and nervous disorders with the corresponding measures for physical conditions. To-day, under the Board of Control, persons were in institutions, and because they were capable of doing good work there was practically no chance of getting them out; their retention meant cheap labour.

Sir JOHN GILMOUR said no sheriff who was called upon to decide these matters could have at command such advice as was available from a central board such as the Board of Control. The Board gave the general public a feeling of confidence. Sir RALPH GLYN said that the proposal in the Bill meant that there would be complete dovetailing of the Board of Control into the Department of Health. He attached importance to keeping the Board, but, by closer collaboration with the Department of Health, many of the difficulties and suspicions would be removed.

Mr. J. S. C. REID said the Government held that, as things were to-day, the method proposed in the Bill was the best for ensuring the cure or alleviation of the mental condition of the persons concerned. The question of the liberty of the subject should not be entirely under the control of the Secretary of State.

On the division the amendment proposed by Mrs. Hardie was rejected by 17 votes to 11. After further discussion Clause 1 was ordered to stand part of the Bill.

Discussion of non-medical provisions of the Bill followed and was resumed on February 21. A new clause was added authorizing the Secretary of State for Scotland to appoint officers and servants in the office of the Registrar-General of Births, Deaths, and Marriages in Scotland. Other drafting amendments were made and the Bill as amended was ordered to be reported to the House.

Silicosis in South Wales

Mr. JAMES GRIFFITHS on February 21 drew attention to the fact that in 1938 out of 434 certificates of disablement by silicosis 382 were issued to miners in the South Wales coalfield. Captain CROOKSHANK said silicosis in South Wales was a matter for grave concern. Continuous efforts were being made to improve the conditions, notably as regards ventilation generally and the suppression of dust during drilling and after blasting in stone, and the mitigation of dust on the travelling roads. A further recent development is the introduction of the new Mark IV respirator sponsored by the Government.

Replying on the same day to Mr. Mainwaring, Captain CROOKSHANK said that from June 1, 1931, to December 31, 1938, the average age of coalminers when certified as disabled from silicosis was approximately 50 years. Since June 1, 1931, disablement certificates had been issued in about

1,850 cases. Of these cases about 220 had subsequently been certified as having died from silicosis. It is not possible to give any figure for the average period between the issue of the disablement and death certificates.

London Voluntary Hospitals and the L.C.C.—Mr. DAVID ADAMS asked Dr. Elliot on February 16 whether the conference about to be held under his aegis between the London County Council and the voluntary hospitals of London was to work on the basis of preparing recommendations applicable to hospital systems throughout the country. He also asked what progress had been made in the carrying out of Lord Sankey's recommendation that the voluntary hospitals of the country should form themselves into an association, regionally organized, for the purposes of joint action. Dr. ELLIOT replied that the conference which was held recently between representatives of the King Edward VII Hospital Fund, the Voluntary Hospitals Committee for the County of London, and the London County Council was of an exploratory character and no decisions were taken. It did not cover hospitals outside London. A committee of the British Hospitals Association was engaged in formulating a scheme of regional organization which was meeting with general approval. The committee hoped to issue a statement in about six months.

Medical Inspection Arrangements at Croydon.—Dr. ELLIOT, in an answer to Sir Henry Morris-Jones on February 16, said the duties of medical officer at the Croydon Airport were carried out by members of the medical staff of the town council under the general control of the medical officer of health. The services of a medical officer were available for the airport at all times. The measures to be taken to prevent the introduction of infectious diseases were prescribed in the Public Health (Aircraft) Regulations, 1938, the responsibility for the administration of which rested with the town council.

Medical Referees in Scotland.—Mr. ROBERT GIBSON asked on February 20 how many medical referees in Scotland under the Workmen's Compensation Act had been dismissed from office or had not had their appointments renewed during the last few years. Mr. GEOFFREY LLOYD replied that during the past five years four appointments which expired had not been renewed. No referee had been dismissed.

Medical News

The first Suckling Memorial Lecture will be delivered by Sir Walter Langdon-Brown in the lecture theatre of University College Hospital Medical School, University Street, Gower Street, W.C., on Tuesday, March 7, at 5 p.m. His subject is "Visceral Symptoms in Emotional States," and the chair will be taken by Dr. F. M. R. Walshe. The lecture is open to all qualified practitioners and medical students.

Professor E. D. Adrian, F.R.S., will deliver an address on "The Development of the Sense of Hearing" at the Royal Institution, 21, Albemarle Street, W., on Friday, March 10, at 9 p.m.

The Very Rev. W. R. Matthews, D.D., will give an address entitled "Ethics and the Supernatural" before the British Institute of Philosophy on Tuesday, March 14, at 8.15 p.m., at University College, Gower Street, W.C. Cards of admission can be had from the Director of Studies at University Hall, 14, Gordon Street, W.C.1.

The annual address to senior students and newly qualified practitioners, arranged by the Metropolitan Counties Branch of the British Medical Association, will be given on Tuesday, March 14, in the Great Hall of B.M.A. House, Tavistock Square, W.C.1, at 5.30 p.m., by Mr. McAdam Eccles, whose subject will be "Pitfalls in the Final Examination and the First Year of Practice." The address will be preceded by a reception at 5 p.m.

In our advertisement columns this week the University of London invites applications for the University Chair of the Pathology of Mental Disease, tenable at Maudsley Hospital. The Professor also will be appointed by the London County Council to the office of director of the Central Pathological Laboratory at Maudsley Hospital and pathologist to the Council's Mental Services.

The ninth Sir Robert Jones Lecture was given by Dr. A. Bruce Gill, professor of orthopaedic surgery, University of Pennsylvania School of Medicine, on the subject of "Treatment of Congenital Dislocation of the Hip," on February 23 at the Hospital for Joint Diseases, Madison Avenue, New York City.

An important series of papers on dangerous gases in the petroleum and allied industries will be discussed at a whole-day meeting of the Institute of Petroleum on Tuesday, March 14, at the Royal Society of Arts, John Street, W.C., beginning at 10 a.m. The Council of the Institute extends an invitation to this meeting to all persons interested, both members and non-members. Among the many contributions will be papers on the physiological effect of toxic vapours and on the detection of toxic gases in industry, and on the safety of electrical apparatus for use in inflammable gases and vapours.

Discussions on "The Future of the Public Health Services," opened by Councillor W. Asbury, and on "The Use of Stainless Steel in Food Industries," opened by Mr. C. C. Hall, will take place at a sessional meeting of the Royal Sanitary Institute at Sheffield Town Hall on Friday, March 10, at 5 p.m.

The Society of German neurologists and psychiatrists will hold its fifth annual meeting at Wiesbaden from March 26 to March 28, when the following subjects will be discussed: (1) Psychical disturbances of old age. (2) Circulation and the nervous system (in conjunction with the German Society for Internal Medicine). Further information can be obtained from Dr. Nitsche, Pirma, Bez. Dresden.

A tropical medicine week will be held at Athens in April. Further information can be obtained from the Institut für Tropische Krankheiten, Hamburg.

The twenty-fifth anniversary of the founding of the British Psycho-Analytical Society is being celebrated by a dinner in London on Wednesday, March 8.

The French liner *Champlain* will leave Havre on April 2 on a French medical cruise which will include Lisbon, Tangier, Casablanca, Agadir or Port-Etienne, Dakar, and Madeira before returning to Havre on April 16. For further information apply to: Croisières Médicales Françaises, 9, Rue Soufflot, Paris Ve.

The Nobel prize in physics for 1938 has been awarded to Professor Enrico Ferme for his research on the radio-activity of the atomic nuclei.

The Services

HEALTH OF THE NAVY

The report on the Health of the Navy for 1936 (H.M. Stationery Office, 2s. 6d.) records a diminution in the incidence of disease and injury from the figure of the previous year. Both the invaliding and the death ratios, however, show a slight increase. The total number of persons finally invalided was 1,078, giving a ratio of 11.68 per 1,000, an increase of 0.83 per 1,000 compared with 1935, and an increase of 1.09 in relation to the five years' average. Eleven men were invalided on account of having refused surgical operations for various conditions.

Remarks on Diseases

Among diseases of the digestive system duodenal ulcer caused the greatest number of invalidings. There were 113 cases, with twenty-two invalidings and three deaths. An epidemic of a mild type of gastro-enteritis occurred among the boys of H.M.S. *St. Vincent* Training Establishment, involving fifty-six cases. Food, water, and milk were excluded as possible sources

of infection, and, since no organism of a group likely to cause the symptoms was isolated from blood or faeces, it was thought probable that the epidemic was attributable to an ultra-microscopic virus. Of eighty-three cases of dysentery twenty-one occurred on the China station. The personnel of the Fleet was not, however, affected by the outbreak, traced to milk, which appeared in Hong Kong in the autumn of 1936. During this epidemic all supplies of fresh milk to ships and naval establishments were stopped. On the Mediterranean station forty-one cases were recorded, the greater number from Alexandria, a town with a high incidence of this disease among the civil population, where large numbers of men were concentrated during part of the year. With regard to malaria, 207 cases are recorded. Increase in incidence was marked in the China station, with ninety cases as compared with thirty-six in 1935. Of these, sixty-four were primary infections, twenty-one occurring in the Hong Kong area and twenty-one at the Yangtse ports. Ten cases of undulant fever were returned, including one invaliding and one death. The majority were infected on the Mediterranean station, and among them were three Maltese ratings and two British ratings, who admitted to drinking goats' milk while on leave ashore.

With regard to venereal diseases, a very satisfactory decline is reported in the incidence of syphilis, the number of cases falling from 424 in 1935 to 341 in 1936. On the other hand the figures for gonorrhoea rose from 2,842 to 3,085. The increase occurred chiefly on the China and Mediterranean stations, especially the latter, where abnormal conditions prevailed.

Injuries

One hundred and seventy-one persons sustained general injuries, a considerable decrease from the figure of the previous year. There were sixteen deaths due to multiple injuries, of which nearly half were caused by motor-cycle accidents. Among the causes of the remaining fatal cases were the explosion of a depth charge, a torpedo slipping from its strop, and crushing between boat and buoy during mooring operations. There were 6,021 entries for local injuries and wounds, in addition to 340 for local burns and scalds. These local injuries resulted in seventeen deaths and ninety-five invalidings. Twelve of the deaths were caused by fracture of the skull, which occurred in eight motor-car or motor-cycle accidents, one road accident, a "roundabout" accident at a fair, a fall from a bastion on shore, and a fall down an open air-trunk. Other causes of death included a fractured spine through a fall from a hammock, laceration of intestines through a fall from a ship's bridge, and a wound of the throat through an accidental fall on to a glass tumbler. A case of unusual interest was one in which a blow from an aeroplane propeller had removed most of the frontal bones and shaved off a considerable part of the front lobes of the brain. It is recorded that the patient suffered little shock or inconvenience, recovered, and returned to duty.*

* Case described in *Royal Naval Medical Journal*, July, 1936, p. 242.

EPIDEMIOLOGICAL NOTES

Typhoid Fever at Birkenhead and Nottingham

Typhoid fever broke out in Birkenhead at the beginning of February, and so far 22 cases have been notified—2, 10, 9, and 1 (week ended February 25) respectively in the last four weeks—with 1 death in a man aged 46. Although the outbreak appears to be subsiding the situation still calls for anxiety, as the cases have come from different parts of the town and bacteriological examinations of water, milk, and foodstuffs have till now proved negative for typhoid organisms.

According to a statement issued by the Medical Officer of Health for Nottingham a case of typhoid was notified at midday on February 24, and by the morning of February 26 21 persons were taken to hospital. One more case has since been admitted. The 22 cases come from ten houses in the Wells Road district, and not far apart. The source of infection is believed to be contaminated food.

Acute Poliomyelitis

The epidemic of acute poliomyelitis in England and Wales appears to have completely subsided; the weekly numbers notified in February were 8, 14, and 6 respectively, compared with 6, 9, and 6 respectively for the corresponding weeks of 1938. The disease appears to have died out in the principal epidemic foci of 1938, and, except for the county of London, none of the cases notified in the week under review came from these areas.

In the *Annual Report* of the Surgeon General to the Public Health Service of the United States attention is directed to the fact that acute poliomyelitis has in recent years shown a shift in incidence and fatality from infants and children to older subjects. A survey of the death rates at different ages for the principal acute infectious diseases over the last twenty-five years revealed that although there was a decline for measles and whooping-cough at all ages there was little or no alteration in its preference for children. On the other hand, in respect of cerebrospinal fever, diphtheria, scarlet fever, and acute poliomyelitis, especially of the two last-named diseases, a definite trend was observed in the direction of an increasing preference for the higher age group. Due allowance was made for the alteration in the age distribution of the population during the period covered by the review. In certain recent outbreaks considerable variations have been recorded in respect of seasonal incidence, rate of spread, and fatality rate. At the same time differences in clinical manifestations have been observed, especially in respect of increasing incidence in the distribution of paralysis. The 1937 outbreak in Texas was cited, in which there were involvements of the muscles of speech, swallowing, and breathing in 87 per cent. of the cases, compared with the incidence of less than 10 per cent. On the experimental side viruses have been isolated in certain of the outbreaks which showed distinct immunological differences as between different strains.

Influenza

In England and Wales during the week notifications of pneumonia (influenzal and primary) rose from 1,435 to 1,919, and in London from 125 to 197; on the other hand, in Scotland, Eire, and Northern Ireland small decreases were reported. Deaths from influenza rose in sympathy, chiefly in London—37 (26 last week); in Manchester there were 13 deaths (the same as last week). The peak of influenza mortality for 1939 is so far lower than the seasonal maximal incidence observed during most of the years since 1917 (thirteen years out of twenty-one), and is considerably below the figures reported during the influenzal epidemics of 1918, 1919, 1922, 1924, 1927, 1929, 1933, and 1937.

In Germany, during the week ended February 4, deaths from influenza in the 57 towns with a population of over 100,000 rose from 108 to 159, but the number of deaths attributed to pneumonia declined from 501 to 459; the general death rate was the same as in the previous week (13.2 per thousand).

In Switzerland in the week ended February 11 there were 11,753 cases of influenza, compared with 8,762 in the previous week. In ten towns, each with a population of over 30,000, there were 23 deaths from influenza during the week ended January 28, compared with 26 in the previous week. In Denmark, in the three weeks ended February 11, notifications of influenza at Copenhagen were 2,433, 4,423, and 6,672 respectively, but only 12 deaths attributed to influenza were recorded during the whole period. It is probable that the large numbers of cases reported from Denmark and Switzerland, compared with other European countries, should be attributed to the more extensive and systematic administrative arrangements for notification in these countries.

In the U.S.A. notifications of influenzal cases for the first three weeks of the new year were 3,255, 3,018, and 3,097 respectively, compared with the median values for the corresponding weeks of the years 1935–8 of 2,423, 2,805, and 3,144 respectively.

No. 7

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended February 18, 1939.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 126 great towns (125 in 1938) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1939					1938 (Corresponding Week)					1930–8 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	44	5	18	2	—	41	5	6	5	2		
Deaths		1	—				2	1				
Diphtheria	1,212	98	207	54	28	1,590	179	261	44	35	1,231	179
Deaths	33	5	6	1	—	39	3	8	1	3		
Dysentery	24	5	24		—	185	63	71		1		
Deaths				—	—				—	—		
Encephalitis lethargica, acute	1	—	1		—	3	—	—		—		
Deaths		1					—					
Enteric (typhoid and paratyphoid) fever	20	—	4	5	2	17	3	2	5	1	25	
Deaths	2	—	—	—	—	2	—	—	—	—		
Erysipelas			79	7	4			74	5	4		
Deaths		—					3					
Infective enteritis or diarrhoea under 2 years												
Deaths	40	15	5	2	4	55	17	5	3	2		
Measles		29	49		2			1,691		384		
Deaths	7	—	—	—	—	31	5	15	2	22		
Ophthalmia neonatorum	76	9	34		1	108	9	35		—		
Deaths												
Pneumonia, influenzal*	1,919	197	60	7	22	1,073	94	13	21	10	1,752	141
Deaths (from influenza)	255	37	35	6	5	42	4	2	2	—		
Pneumonia, primary			288	12				247	12			
Deaths		30		18	10		25		30	21		
Polio-encephalitis, acute	—	—				—	—					
Deaths		—					—					
Poliomyelitis, acute	6	2	1		—	6	—	1	1	—		
Deaths		—					—					
Puerperal fever	4†	4	8	2	3	4†	4	11	2	3		
Deaths		1‡					1‡					
Puerperal pyrexia	191	27	21		1	162	9	18		—		
Deaths												
Relapsing fever	—	—			—	—	—	—		—		
Deaths												
Scarlet fever	1,637	172	267	69	81	2,287	147	490	100	78	2,179	242
Deaths	1	—	—	—	—	3	—	—	—	—		
Small-pox	—	—	—		—	—	—	—		—		
Deaths	—	—		—	—	—	—		—	—		
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths				—	—				—	—		
Whooping-cough		264	516		34			42		9		
Deaths	14	4	12	3	1	20	3	1	1	2		
Deaths (0-1 year)	398	60	67	27	20	465	86	65	59	31		
Infant mortality rate (per 1,000 live births)	61	50				78	71					
Deaths (excluding stillbirths)	5,953	1,225	678	207	161	5,194	1,020	701	245	193		
Annual death rate (per 1,000 persons living)	14.6	15.6	13.7	13.9	14.3	12.8	12.8	13.0	16.6	17.1		
Live births	6,440	1,084	837	387	226	6,204	1,156	927	294	226		
Annual rate per 1,000 persons living	15.8	13.8	16.9	26.0	20.0	15.3	14.6	18.9	19.9	20.0		
Stillbirths	244	28	32			272	36					
Rate per 1,000 total births (including stillborn)	37	25	37			42	30					

* Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

† After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

‡ Death from puerperal sepsis.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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The TELEGRAPHIC ADDRESSES are
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The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh;* telephone 24361 Edinburgh), and of the Office of the Cumann Doctúirí na h-Éireann (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin;* telephone 62550 Dublin.)

QUERIES AND ANSWERS

Sweating in the Tropics

Dr. H. LECHMERE CLIFT (Hong Kong) writes: I should be glad of advice from any of my medical brethren concerning a patient whose life is rendered wearisome by abnormal activity of the sweat glands. Previous residence in India proved that as regards perspiration he was entirely normal. Removal to the humid climate of South China began the trouble, and it has continued during all the years since. Now, even in winter, whether in England or out East, a warm room or any unusual exercise immediately stimulates the sweat glands to abnormal activity. The patient is a total abstainer and non-smoker. He is very intolerant to atropine. He consumes tea (weak) in large quantities, and coffee also. Is it a sound principle to give such patients large quantities, such as one tablespoonful, of common salt daily to make up the loss of sodium chloride in the perspiration? Is there anything else that could be given to compensate for the other constituents of the sweat? This patient has not been in the habit of taking cold baths. While in India he did so, but was advised against them on arrival in China. He has a daily hot bath. As regards diet, he eats very little meat. All the other functions are normal.

Cheiropompholyx

Dr. J. H. DOUGLAS WEBSTER writes in reply to "A.B.C." (February 25, p. 430) that he has treated successfully lately several cases which had proved intractable to the usual remedies. *X* rays were applied at two- or three-weekly intervals for about three times, the factors being: 80 kV, 0.2 mm. Cu filter, 30 cm. distance, 140 *r* (scattered) each time.

Tapeworm

"LUGWORM" writes: "George's" case (February 18, p. 370) so strongly resembles my own experience in Mesopotamia in 1918 that I am tempted to believe that it is in fact a somewhat apocryphal description of my own case. If so, the true facts are as follows. The ordinary textbook treatment by filix mas having failed twice, I decided on forty-eight instead of twenty-four hours' starvation. On the evening of the second day, having become tired of my own company, I went to dinner in the mess, but ate no food; I did, however, have a few drinks, but certainly not enough in the ordinary way to cause manifest symptoms. As a result no doubt of previous abstinence from food, absorption was extremely rapid, and a hilarious and, subjectively, an extremely pleasant intoxication ensued. Of the events of the evening I have only a dim recollection, but early next morning I took a double dose of filix mas, followed by a saline aperient, which gave the desired therapeutic result. It therefore remains uncertain how much value should be placed, so far as this case is concerned, on the four following factors: (1) forty-eight hours' starvation; (2) alcohol; (3) filix mas; and (4) the saline aperient. I am glad to say that I have not had an opportunity in person to do a control experiment, leaving out one of the above factors.

LETTERS, NOTES, ETC.

Spanish Refugees in France

The British Red Cross Society has received a report from its representative, Major-General Sir John Kennedy, who is now at Perpignan inquiring into the question of relief for the Spanish refugees who have crossed the frontier into France. Thousands of them need relief of all kinds, but the very urgent demand is for blankets, shirts, pyjamas, vests, and pants. Money is required at once to provide supplies of these articles, and the British Red Cross Society will be glad to receive donations to enable help in this direction to be sent immediately to Perpignan. Cheques, etc., should be addressed to: The Hon. Sir Arthur Stanley, British Red Cross Society, 14, Grosvenor Crescent, London, S.W.1, and marked "Spanish Relief Fund."

The following communication has been received from Drs. C. F. Hill, Alexander Tudor Hart, A. L. Cochrane, L. Crome, G. B. Shirlaw, and H. Bradsworth: The signatories of this letter launched an appeal two months ago for the purpose of helping doctors and nurses who have worked in Government Spain and who are now unable to return to their countries. We wish to thank all those who have contributed to the fund. Most of the Government medical personnel are now in the concentration camps in Southern France. They are looking after the sick and wounded of the Spanish Republican Army, carrying on their work under the most difficult conditions. We had a letter from a Hungarian nurse, who says: "The conditions in the concentration camps are too ghastly to describe. We knew it would be bad, but we didn't imagine that it would be quite so bad. The food consists of one loaf of bread between five of us for twenty-four hours; our patients get no more. We are either going to die of hunger or else perish from the cold. There are no blankets, and we sleep on the open ground. Please send us all the help you can." Needless to say, all the money we have collected has already gone to the South of France. It was merely a drop in the ocean, but it at least held out hope to our unfortunate colleagues and friends. We feel that it is our duty to do everything in our power to help the people who with such self-sacrifice and devotion abandoned their personal interests two and a half years ago and have since tirelessly persevered in their humanitarian work. We feel that your readers will not fail us if we ask again for contributions for that purpose. All contributions should be sent to the honorary treasurer, Dr. C. F. Hill, 162, Kingston Road, Merton Hill, S.W.19.

"Radio Normandy Syndrome"

Dr. R. N. C. SMITH (Ilford) writes: In a report of a discussion at the Medical Society of London on the use and abuse of purgatives (*Journal*, February 25, p. 404) mention of a type of constipation not uncommon in general practice was omitted—I refer to that secondary to mental depression. In many mild cases of depression the patient comes to the practitioner complaining only of constipation, and not until asked to expatiate will he bring forth the list of symptoms well known to listeners to Radio Normandy—lethargy, dullness, lack of interest, and vertical headache, which he imagines are the result of his bowel apathy and not coincident results of his mental condition. In any case of constipation I now inquire into the patient's affective state, and time together with sedatives and belladonna or benzedrine effects a cure of symptoms and constipation, while explanation may save the patient from resort to unnecessary and harmful bowel irritants.

From March 4 all communications for Messrs. Eli Lilly and Co., Ltd., should be addressed to them at their new manufacturing plant at Basingstoke (telephone: Basingstoke 800). The London office, in future, will be for information only.